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NEW MEDIA AND CHANGING EDUCATIONAL PATTERNS, A SUMMARY OF THE PREPARATIONS FOR, PRESENTATIONS, AND GROUP REPORTS OF THE NEW MEDIA WORKSHOP (TAHOE CITY, CALIFORNIA, AUGUST 1-7, 1965).

BY- BROWN, JAMES W. AUBREY, RUTH H.
CALIFORNIA STATE DEPT. OF EDUCATION, SACRAMENTO

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A SUMMARY IS GIVEN OF THE ACTIVITIES OF THE NEW MEDIA WORKSHOP HELD AT THE UNIVERSITY OF CALIFORNIA ALUMNI CENTER, TAHOE CITY, ON AUGUST 1-7, 1965. THE PURPOSE OF THE WORKSHOP WAS TO CLARIFY ISSUES AND DEVELOP GUIDELINES RELATING TO AUDIOVISUAL AND SCHOOL LIBRARY EDUCATION, IN ORDER TO ASSIST SCHOOL PERSONNEL IN THE USE OF NEW MEDIA. THE MAIN CATEGORIES OF DISCUSSION WERE (1) NEW MEDIA PROBLEMS IN CALIFORNIA, (2) THE NATIONAL SCENE, (3) CURRICULUM TRENDS AND THE NEW MEDIA, (4) NEW MEDIA IN TODAY'S EDUCATIONAL PROGRAMS, AND (5) GUIDELINES AND RECOMMENDATIONS. (MS)

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NEW MEDIA AND CHANGING EDUCATIONAL PATTERNS

CALIFORNIA STATE DEPARTMENT OF EDUCATION • SACRAMENTO
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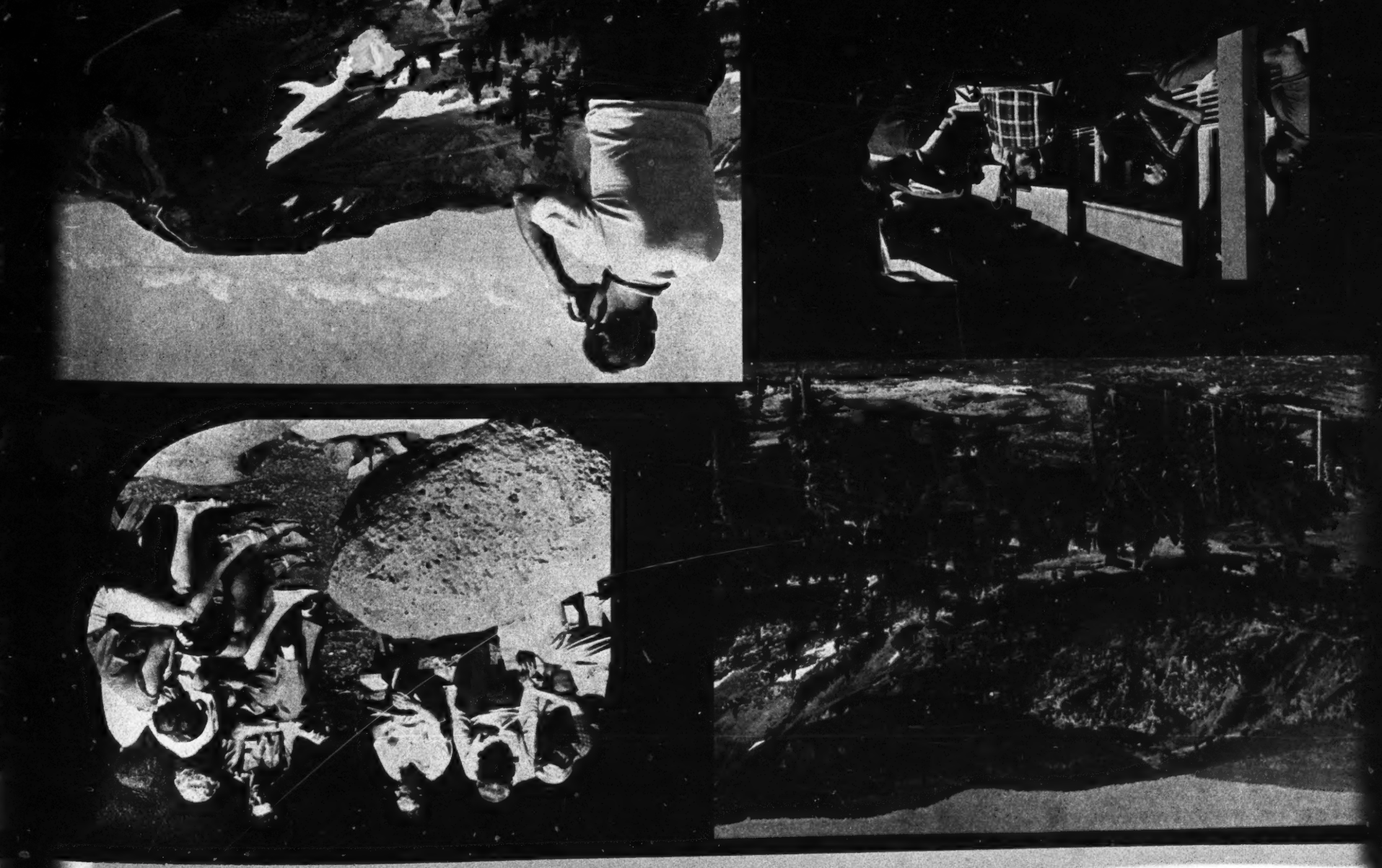
1966



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New Media and Changing Educational Patterns

A Summary of the Preparations for,
Presentations, and Group Reports of
the New Media Workshop Held at the
University of California Alumni Center,
Tahoe City, California, August 1-7, 1965

Compiled by

JAMES W. BROWN

and

RUTH H. AUBREY

Under the Direction of

Harry J. Skelly, Chief, Bureau of
Audio-Visual and School Library Education
State Department of Education
Sacramento, California

Foreword

Evidence of widespread interest in new educational media may be observed statewide in the increased numbers of instructional materials centers, learning laboratories, educational television stations, and in the many uses being made of self-study devices, recordings, transparencies, videotapes, and various other audio-visual materials. It is also evident in the extensive experimentation and research now existent in the use of instructional materials to improve and accelerate the learning process. In fact, the current interest and surge of activity in the use of educational media emerge as a vital part of our present efforts to strengthen and improve educational quality and educational opportunities in our elementary and secondary schools and in our colleges and universities.

Changes are occurring rapidly in many aspects of school organization and curriculum development. Changes in curriculum content are already reflected in the "new" mathematics, science, foreign language, and social science programs. Important changes are also taking place in the means of instruction (tools and materials), as educational goals and the means of implementing them go hand in hand. Those who work with the means of instruction--audio-visual and school library materials--face new and renewed challenges--challenges to reexamine present programs and services, to evaluate and appraise new materials and devices, to apply research findings to classroom procedures, and to integrate materials into changing curriculum patterns so as to assure optimum learning. These new demands require that leaders in the educational media field develop, among other things, skill in introducing innovations, competency in planning with those responsible for curriculum, and proficiency in providing the kinds of materials and the quality of services required of education today.

It is the responsibility of the State Department of Education to provide opportunities for professional personnel within our state to consider the various implications of new, as well as old, instructional media in changing curriculum patterns and what these mean for instructional materials services and leadership functions. Such an opportunity was provided in the New Media Workshop held in August, 1965, at the Alumni Center, Tahoe City, for audio-visual directors, school librarians, and a selected number of supervisors, administrators, curriculum coordinators, and teacher educators. The week-long deliberations of this group are reported here, together with summaries of presentations by curriculum and educational media specialists. This publication should stimulate further study and provide guidelines for improving programs and services in audio-visual and school library education in the schools of our state.

Max Rafferty

Superintendent of Public Instruction
and Director of Education

Preface

The 1965 New Media Workshop, sixth in a series of summer workshops sponsored by the California State Department of Education, focused essentially on matters related to audio-visual and school library education. It was different from the others in that emphasis was on the implications of changing curricular patterns for the use of new educational media in school programs. It was like the others in that this workshop was designed primarily for leadership personnel in audio-visual and school library education and included a selected number of administrators, curriculum directors, supervisors, and teacher educators.

As in previous workshops, the purpose was to clarify questions and issues and to develop guidelines to aid educational media and other school personnel in solving their own most pressing media problems and in planning new or long-range programs of the future.

Planning by the staff of the Bureau of Audio-Visual and School Library Education for the workshop began early in 1965, when funds available under Title III-B of NDEA made the undertaking appear possible. Impending national legislation bearing on improved and increased uses of instructional materials, together with pressures from school personnel throughout the state to attend the workshop, resulted in increasing the number of participants from the initial limit of 75 to over 150 before registrations were no longer accepted.

The large number of participants and the complexity of the topics to be considered required a carefully planned and highly structured program. Consequently, committee members, group leaders, and consultants were selected early and well briefed before the opening session of the seven-day workshop.

Workshop organization followed the usual pattern of general sessions and small group meetings. General sessions included presentations by curriculum and media specialists and experts in the other aspects of school organization and development. Participants were assigned to one of six study groups, each of which considered in depth the problems listed in Chapter 1 of this publication. Reports from each study group climaxed the workshop activities.

Curriculum trends in social science, English language arts, mathematics, science, and foreign languages considered to be of special significance to those concerned with the use of instructional materials in the learning process were presented to the entire group. Developments in the field of psychology, school plant design, and other matters of importance to audio-visual and school library personnel were also presented to the entire group, and their relationship to new media use was discussed. Probable effects of new legislation on audio-visual and school library education services were constant points of focus throughout the workshop. The implications of these matters for audio-visual and school library programs and services provided the content of the small group discussions and the bases for development of guidelines to future action.

This publication brings together, in summary form, the major presentations and the six group reports. It is hoped that this workshop report will help audio-visual and school library personnel and other educators to structure their efforts for the immediate years ahead and that it will suggest functions and activities

which will contribute effectively to the changes now taking place in education and those which are imminent.

Many persons contributed directly and indirectly to the success of the New Media Workshop. These included the consultants, committee members, group leaders, the workshop staff--and, of course, the participants. Their contributions are gratefully acknowledged.

Special acknowledgment for the preparation of this report is given to James W. Brown and Ruth H. Aubrey, who collated and edited the workshop presentations and group reports. And finally, appreciation is expressed to Guy M. Helmke, Elwood H. Lehman, and Harvey McCammon for the photographs used in this publication.

DONALD E. KITCH
Acting Chief, Division of Instruction

HARRY J. SKELLY
Chief, Bureau of Audio-Visual and School Library Education

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Lester Beck, Professor of Psychology, researcher and film producer
Mildred M. Brackett, Consultant in School Library Education, State Department of Education
James W. Brown, Dean, Graduate Division, San Jose State College
Ruth Parlé Craig, Instructor in Foreign Language, Santa Rosa Junior College
June Dilworth, Director, School Broadcasting, KCTS-TV, University of Washington
James Finn, Professor of Education, University of Southern California
Abraham S. Fischler, Professor of Education, University of California, Berkeley
Lawrence P. Frymire, Educational Television Coordinator, State of California
Robert Gerletti, Director, Division of AV Education, Los Angeles County Schools
Charles Dana Gibson, Chief, Bureau of School Planning, State Department of Education
Claude W. Hass, Consultant in Audio-Visual Education, State Department of Education
Guy M. Helmke, Special Consultant, NDEA, State Department of Education
Howardine Hoffman, Assistant Superintendent, Los Angeles County Schools
Leslie H. Janke, Head, Librarianship Department, San Jose State College
Donald E. Kitch, Chief, Supplemental Education Section, State Department of Education
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Elwood H. Lehman, Planning Consultant, Bureau of Junior College Education, State Department of Education
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Tom A. Shellhammer, Consultant in Education Research, State Department of Education
Mendel Sherman, DAVI President, Assistant Director, Audio-Visual Center, Indiana University, Bloomington
Harry J. Skelly, Chief, Bureau of Audio-Visual and School Library Education, State Department of Education
J. Graham Sullivan, Chief, Division of Instruction, State Department of Education
Don White, Executive Vice-President, National Audio-Visual Association, Fairfax, Virginia

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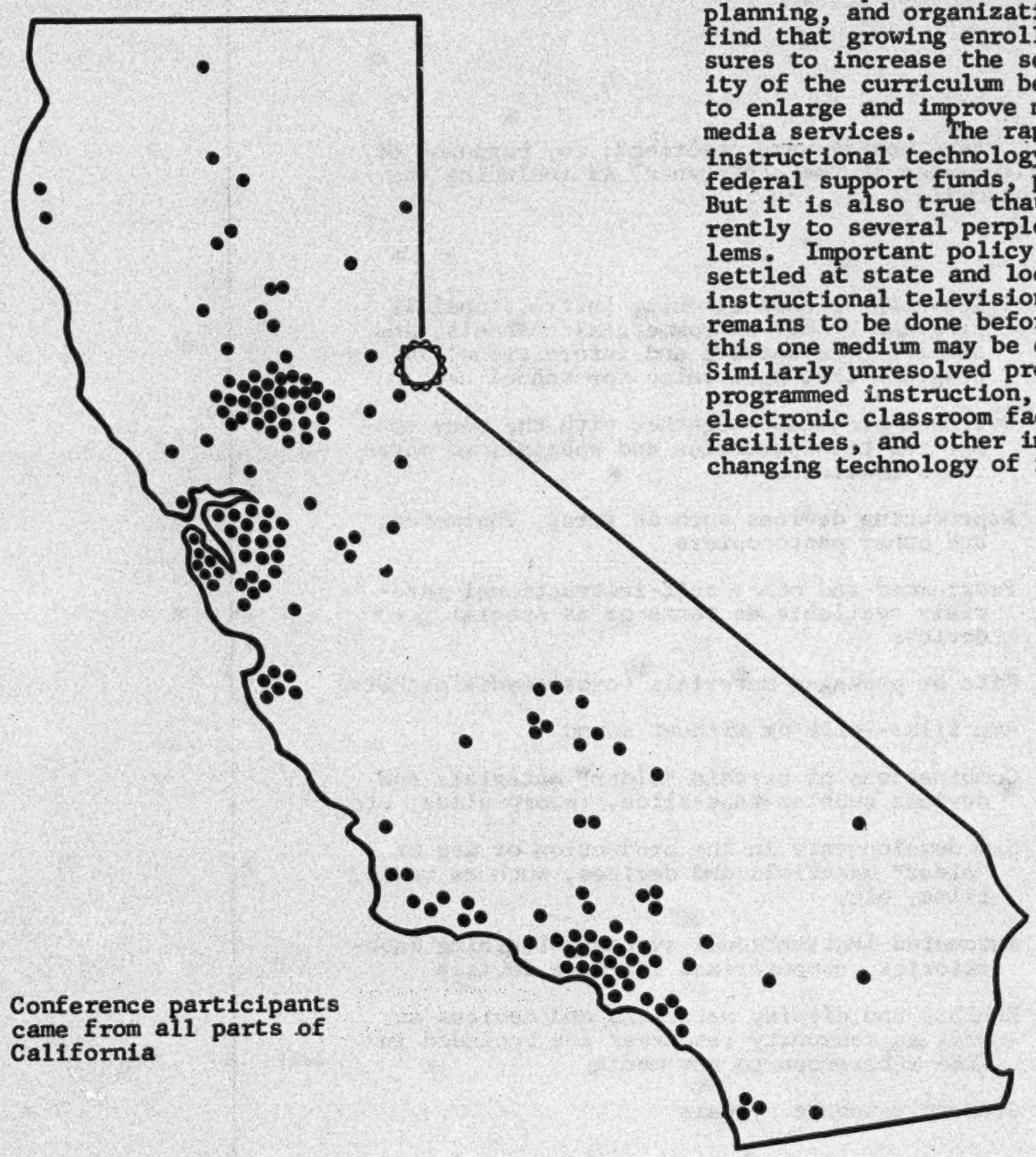
Chapter 1

New Media Problems in California



Conference participants came from all parts of California

In California, as in other states, critical problems involved in the use of educational media focus at top levels of administrative leadership, planning, and organization. Schools and colleges find that growing enrollments and mounting pressures to increase the scope and improve the quality of the curriculum bear directly upon the need to enlarge and improve many aspects of educational media services. The rapid expansion of modern instructional technology, stimulated in part by federal support funds, presents exciting prospects. But it is also true that it gives rise concurrently to several perplexing and difficult problems. Important policy problems remain to be settled at state and local levels with regard to instructional television, for example, and much remains to be done before adequate use of just this one medium may be effected in the schools. Similarly unresolved problems exist regarding programmed instruction, language laboratories, electronic classroom facilities, independent study facilities, and other important facets of the changing technology of instruction.

The "New Media Workshop for Educational Media Personnel," summarized in this report and growing out of needs similar to those just mentioned, had the primary purpose of providing ". . . an opportunity for audio-visual personnel, school librarians, administrators, and curriculum directors to review their present status and to provide guidelines for future development in the use of all newer media and materials, including instructional television, programmed instruction, educational systems, learning laboratories, (and others). Opportunities will also be provided to explore the possible effects of recent legislation as well as to study certain trends, strands, and other pertinent developments in the curriculum areas circumscribed by the National Defense Education Act."

It was not the intent of those responsible for planning this conference to provide (or to seek) final answers to all major problems of the educational media field. Rather, the aim was to seek to clarify questions and issues and to develop guidelines to aid educational media and other school personnel in solving their own most pressing media problems. No magical formula was expected, nor was one discovered. But it was believed that a better understanding of the nature and scope of such problems would provide useful clues and guidelines to aid in making current decisions and in planning details of new or long-range educational media programs of the future.

WHAT ARE THE NEW MEDIA?

"New media" were described, for purposes of discussion at the conference, as including the following:

Television--closed circuit, instructional TV programs on ETV or commercial channels, and other public service and informational TV programs that have value for school use

Overhead projector together with the many commercial transparencies and specialized materials available

Reproducing devices such as Xerox, Thermofax, and other photocopiers

Programmed and other self-instructional materials available as texts or as special devices

Kits or packaged materials (cross-media packets)

8mm films--with or without sound

Combinations of certain "older" materials and devices such as tape-slide, record-slide, etc.

New developments in the production or use of "older" materials and devices, such as radio, films, etc.

Automated instructional systems, learning laboratories, computerized learning devices

Exhibit and display materials and devices as well as community resources are included in NDEA references to new media

Student response systems

ORGANIZATION OF CONFERENCE STUDY GROUPS

Six different groups, in all, were formed from those who attended, as follows:

Group 1--New Media and Changing Educational Patterns (Organization and curriculum changes)
Group 2--New Media and Their Effects Upon Teaching and Utilization Practices (Including a consideration of learning principles)
Group 3--Teacher Education (Pre-service and in-service education)
Group 4--Organization and Administration of the Instructional Resources Center
Group 5--New Media and the Design of Facilities and Learning Spaces
Group 6--New Media and the Changing Role of Leadership Personnel

---

Questions or comments distributed by the workshop staff in advance of the workshop sessions are provided in materials that follow. "Groups" (1 through 6) as designated indicate the manner in which the more than one hundred participants were divided for study and discussion purposes.

Group 1. New Media and Changing Educational Patterns

Several important trends were recognized and described in preliminary materials submitted by the planning committee prior to the conference.

1. Curriculum patterns are being modified in various ways. These may or may not be regarded as full-blown "trends":

   •A shifting focus from high school and elementary school to recognition of the crucial importance of pre-elementary school instruction. (Recognition of the need for more early preventive measures to reduce need for later remedial measures.)

   •Increased recognition of the importance of environment, physical and psychological, that not only supports changes within the school but becomes an agent or catalyst of change.

   •Efforts to correct the curriculum imbalance resulting from stress on mathematics and science by more attention to humanities and social sciences.

   •Changes in emphases and placement of content: arithmetic and science content placed at lower grade levels; African- and Asian-world emphasized; obsolete content discarded; foreign languages in elementary grades.

   •Emancipation from rigidly prescribed curriculum and organizational structure of the school and a shift toward:

   Greater flexibility in scheduling groups, classes, and content.

   Greater emphasis on individual learning.

   More attention to social problems and controversial issues.

   More provision for divergent thinking and creativity.

   •Recognition of need for vocational competence and vocational experiences appropriate to students and children of all the people.

   •More meaningful programs for the culturally disadvantaged and economically deprived.

2. New organization and staffing patterns are emerging.

   •Curriculum centers (regional in some cases) to initiate and conduct experimentation and research with methods, content, and teaching materials.

   •Cooperative teaching--also called team teaching.

   •Provisions for large-sized, middle-sized, and small-sized group instruction.

   •Individualized instruction--self-instruction--use of carrels.

   •Core programs.

   •Non-graded-multigraded school organization.

   •Homogeneous, heterogeneous, and "flexible" groups.

3. We now have a better understanding of the learning process.

   •Research findings on thinking.

   •Search for learning principles and their application to teaching practices.

   •Attention to behavioral objectives.

   •Learning as a social process.

4. We see more clearly how to close the gap between the requirements of designing a good curriculum and implementing it in the classroom.

   *More precise and definitive translation of goals into behavioral outcomes; better analysis of learning tasks followed by planning sequences of content, experiences and thinking to achieve those outcomes. A good teaching strategy considers all elements in the teaching-learning situation. Content, materials, and experiences are selected and used more precisely to communicate the right message to the right audience at the right time and place.

5. There is greater use of research findings in planning and evaluating educational innovations.

6. What contributions can and do new media make to the process of changing curricular patterns? To changing patterns of school organization? How can they make a maximum contribution? (What do we really mean to say when we say new media can be used to achieve our educational goals more effectively?)

7. In planning curriculum sequences, we are concerned with values, sensitivities, skills, and thinking processes. How can new media assist in achieving educational goals related to these matters?

8. What are the chief obstacles to achieving optimum use of new media in the modern curriculum? Is "saturation" really a principal need?

9. What decisions must be made (and how should they be arrived at) to include certain media in the school program? To exclude certain media? To emphasize certain media?

10. How should media specialists work with commercial enterprises to develop media capable of meeting changing curriculum requirements? How should media be used to disseminate information about such changes?

Group 2. New Media and Their Effects Upon Teaching and Utilization Practices

Ways in which teaching and utilization were being influenced by new media were also recognized and described in preliminary materials submitted to conference participants. The question was asked: What implications do these changes have for the selection and use of new media?

Suggestions

1. While traditional education has been (and is still) concerned with the acquisition of "pre-digested" facts, modern education emphasizes concept development, problem-solving, and skill in thinking processes. Attitudes and values are increasingly important in planned learning experiences.

2. There is increasing recognition of the significance of the climate of an instructional group, its interpersonal relations, and other factors in the socio-cultural environments that affect learning--the way pupils perceive learning tasks, the functioning intelligence of learners. This knowledge affects the teaching plan, and hence, the selection and use of appropriate instructional media and messages.

3. A more precise teaching strategy is seen to be needed--one that meets requirements for learning based on careful analyses of specific curricular goals. Curricular goals need to be translated into behavioral outcomes; procedures have been specifically geared to achieving these goals. These procedures are often tested and retested in classroom situations.

4. Experiencing as an active transaction rather than that of getting the "right answer" is emphasized.

5. Disciplined minds and a scientific attitude of inquiry are also goals. There is a move from prescriptive, expository teaching to helping students to think as historians think, or as physicists or artists think. The structure of a discipline (different for each discipline) is conceived as essential "content" to be experienced and learned.

6. There is a focus on leading pupils to discover or to develop concepts and ideas for themselves, rather than to memorize facts.

7. There is a change in the teacher's role from that of purveyor of knowledge to "communication strategist"--one who guides learning, arranges a proper environment, and is master of the use of technological media. Teachers are also planning together for teaching-learning tasks.

8. There is a new emphasis on giving children opportunities to make choices, to direct their own behavior, to learn skills of cooperation.

9. There is increasing recognition of differences among learners; e.g., boys do not catch up with girls in most basic skills until the secondary level according to California test data.

Questions

Questions pertaining to "teaching practices" also bear upon study of questions pertaining to this aspect of the educational media program in today's schools.

1. Teaching practices are beginning to focus more precisely upon procedures based on a more careful analysis of the learning task or tasks needed to achieve stated behavioral goals. What does this fact imply with respect to uses of new media?

2. Do some new media threaten existing teaching practices? If so, under what circumstances should this development be encouraged? If not, how can it be prevented?

3. Have most new media been sufficiently "researched" or field-tested so as to determine fairly exactly what can be accomplished with them and under various conditions? If so, what remains to be done to make them integral to the instructional program? If not, what steps should be taken to field-test and to implement the curriculum on a broader and more effective basis?

4. Are we to get <u>real</u> educational changes simply by using more overhead transparencies, films, programmed materials, or TV; or are we only substituting and altering methods of teaching without insuring improved results?

5. Dr. Hilda Taba points out four important kinds of objectives: (1) knowledge, (2) thinking, (3) values, attitudes, sensitivities, and (4) skills. Each requires a different kind of teaching strategy--different materials and different ways of using media. Knowledge, she contends, is the only objective that can be implemented by content; the other three are implemented through ways we teach and learn (<u>Audiovisual Instruction</u>, May 1964, p. 271). What are implications for uses of new media in teaching for goals other than that of gaining information?

6. How should or can research findings be used to improve and extend the use of new media? What is needed to bridge the gap between research and the application of findings to classroom practices?

7. In terms of the foregoing changing points of view about what is to be taught, what is to be emphasized, at what levels, with what size groups, etc., the development and use of new materials become extremely complex. What are some of the problems involved in procuring, producing, and using new materials in such changing schools? What guidelines for using new media ought to be considered?

8. In the light of educational tasks now facing our society, what more suitable alternatives are there to the increased, improved, and more intensive uses of new media?

9. New and valid discoveries are made daily as to how learning occurs and as to the nature of learners. These findings should affect teaching practices. What do they imply for the use of new media? What do they imply for evaluating strengths and weaknesses of media and for techniques of their use?

10. "Responses to stimuli in communication systems are not automatic and mechanical, but are dependent on the totality of cultural and personality factors which each respondent brings to the situation." ("Human Communication," Franklin Fearing, <u>AV Communication Review</u>, September-October, 1962, p. 81). What are the implications of this statement for uses of new media?

11. Do we merely want teachers to use <u>more</u> new media and technical devices? Or do we seek to go deeper and ask what really is to be accomplished by inducing teachers to use new instructional media?

12. Do statements like, "By using new media we can teach more students more in less time," or "We can bring via TV great teachers and enriched offerings," really define valid purposes for using new media?

13. Are some new media (radio, for example) neglected in favor of more dramatic devices? If so, does the media leader have some responsibility with respect to this neglect?

14. In what areas do results so far obtained with television justify its expense? What is the evidence on its instructional effectiveness? What problems must be solved if TV is to relate integrally to the teaching-learning process?

15. What areas of responsibilities should media leaders consider in developing plans for extending and improving uses of new media?

16. What should media leaders do about introducing or encouraging automated instruction? Television?

17. It has been pointed out by some educators that the difficulty of using some device or medium is a barrier to its adoption and continued use. The complexity or simplicity of new devices is said to affect the rate of acceptance or diffusion. Factors which implement use generally include: (1) availability or accessibility; (2) ease of use; (3) operating conditions of equipment; and (4) skill of operators. Do these factors also operate with respect to new media? What is the media leader's role in this respect?

18. What is the media leader's role in relation to research on uses of new media? What are the implications, for example, for teaching practices involving new media use based on studies on perception?

19. What is the media leader's responsibility with respect to commercial enterprises for planning, field-testing, and evaluating new materials being prepared or in the planning stage?

Group 3. Teacher Education: Pre-service and In-service

Several statements and questions were submitted in advance to guide the thinking and planning of the group assigned the task of studying implications of new media and new media utilization to the problems of pre-service and in-service education.

About Preparation in Media Use

1. Because new media and instructional materials play increasingly important roles in today's changing schools, what provisions should be made in teacher education institutions to inform pre-service teachers of these changes and to provide them with skills and competencies needed for their proper use?

2. Current teacher training requirements in California focus on more subject matter--knowledge per se--leaving students little time for so-called "methods" courses. What does this imply for in-service education with respect to new media?

3. There appears to be considerable lag between the extent of use of new media in schools and that required to meet educational tasks we now face. What program of pre-service and in-service teacher education is needed to bridge this gap?

4. In the literature we read, "New media arouse feelings of inadequacy and uncertainty on the part of the teacher, but this must not be mistaken for outright resistance to change." "Inability to use destroys more innovations than reluctance." How can teacher educators and administrators provide the assistance teachers need in order to feel secure in using new media?

5. What is (or should be) the role of teacher education institutions in effecting desirable instructional innovations with regard to uses of new media in elementary and secondary schools?

6. According to a number of observers, individual teachers who have taken courses have little influence on getting major shifts in teaching practices. Administrators seem to play a major role in introducing innovations, in facilitating their adoption, and in assuring their continued use. If this is true, what are the implications for pre-service education and in-service programs in new media?

7. A specialist in communication (Dr. David Berlo) says, "If you are a professional--you are to attain or maintain the role of the professional. If you are to succeed in designing messages which control learning in ways consistent with the objectives of the message, you need high competence in message and media." Does the typical pre-service preparation of the audio-visual leader insure his competence in designing the "message" as it relates to the educational objectives it is to achieve and skill in developing and/or selecting and using appropriate means (media) for communicating messages to the target audiences (a given pupil, a group) at a particular time, under specific conditions?

8. Brickell says that a special task force is needed to introduce innovations in the schools and that demonstrations need to be integral segments of normal school operation. If this applies to the introduction of new media, what is its meaning for in-service education?

About Uses of New Media in Teacher Education

1. Have programs of self-instruction or for the use of cross-media kits proved effective in pre-service or in-service training in uses of new media?

2. In what ways can new media be used to communicate educational research findings to large groups of teachers?

3. How can mass media be used more effectively to report to teachers-in-training and on-the-job significant developments and changes in school programs and practices?

4. Can more "television teachers" be used to upgrade teaching skill in both in-service and pre-service situations?

5. New media can be used (perhaps are being used) as training materials for prospective teachers. Examples: Special units on how to teach new math or creative writing, how to use committees, how to interpret data and check the reliability of authorities; or materials showing teachers at work with various kinds of children and under various kinds of conditions.

Group 4. Organization and Administration of the Instructional Resources Center

There are many concerns that may face (or do face) audio-visual leaders--all the result of changing curriculum and organizational patterns within the schools. Important questions pertaining to these concerns were outlined, in advance of the conference, under the three headings: (1) administration of the AV center, (2) procurement, use, and evaluation of media, and (3) in-service education.

Administration of the AV Center

1. How will the organization and administration of audio-visual centers be affected by federal legislation? What specific guidelines are needed to help administrators and/or directors in making needed changes?

2. What changes in the organization and administration of an AV center (or instructional materials center) are implicit in the expanded uses of newer media for:

   - Individualized instruction--cubicles, carrels?
   - Small groups and committees?
   - Large, small, and medium-sized group instruction?
   - Team or cooperative teaching?
   - "Small schools" in big schools?
   - Flexible scheduling of groups?
   - Expanded uses of media?
   - New placement of old content--and new content?
   - Emphasis on other teaching goals besides knowledge and skills (e.g., values, attitudes, thinking, sensitivities, etc.)?
   - Non-graded, multigraded organization?

3. What functions must the AV center (IMC) perform to meet the needs of the changing school? What staffing patterns are needed for the supervision and leadership functions? For strictly service operations?

4. Teachers' roles are changing as a result of changing curriculum practices, organizational patterns, and availability of new media. With these changes, the need for more teacher time for planning is recognized. In what ways will this trend affect the functions of the AV center staff and the operation of their services?

5. How do the following devices and media (and other innovations) affect the administration and operation of an AV center?

   a. computers and record-keeping devices (data processing)
   b. copying machines
   c. learning laboratories (including language and listening laboratories)
   d. automated instructional devices--teaching machines
   e. viewing and listening centers for individuals and small groups
   f. others

6. Education is becoming increasingly learner-centered rather than teacher-centered. This has led to increased uses of materials designed for self-instruction. In what ways does this trend affect the organization and operation of an AV center?

7. How do expanded uses of new media affect staffing requirements for technical specialists (as in radio, TV, etc.)?

8. What research and evaluation functions should be performed by the professional AV staff?

9. Which devices or media require decentralized distribution? Which centralized? How do these differences affect the administration and organization of a typical AV center?

10. With the greatly expanding demand for new media and AV professional services, materials, equipment, etc., old budget policies and patterns of financing AV education must be re-examined. What should be done in this regard? What new trends may now be discerned?

11. If the audio-visual center and library become an "instructional materials center," what functions will remain the same? Which will be altered? Which eliminated? What will be added? What changes, if any, will occur with regard to staff assignments and responsibilities?

12. On what bases can there be cooperative sharing and exchange of resources among various AV centers?

13. What about regional educational centers for experimentation, production, research, and services that would serve the needs of several districts? How would these be administered? What would be their relationship to existing centers in school systems?

14. How will servicing procedures be affected by uses of new media? By the library-AV center "merger"?

Procurement, Use, and Evaluation of Media

1. With the expanded needs for and uses of new media, what range of instructional media should be provided? On what bases should they be selected? Which media should have highest priority?

2. What is the responsibility of professional AV personnel for introducing media innovations? For evaluating them?

3. The need for flexibility in the use of materials in a variety of different learning situations seems to lead to "packaging and unpackaging instructional materials without discarding the entire original development." What is the implication of this fact for AV staffs and their services?

4. What does the fact that the "obsolescence factor" for materials seems to be becoming shorter mean with respect to materials procurement and replacement policies?

5. How can AV centers obtain better and more continuous feedback from teachers concerning the value and effectiveness of their services?

6. It has been pointed out repeatedly that "simplicity of use and readiness for use" are important elements in acceptability and adoption of media by teachers. What are the implications of these criteria for the AV center?

In-service Education

1. How will expanded uses of new media affect in-service education of teachers? What will be the AV center's responsibility for such training?

2. How can an AV center keep teachers abreast of the new developments in media, the application of new research on media use, and administration?

Group 5. New Media and the Design of Facilities and Learning Space

Certain concerns of significance to audio-visual leaders occur as results of changing curriculum and school organizational patterns. The concept of an instructional materials or instructional resources center is implied in some of the questions that follow despite the fact that the reference may be to "audio-visual" centers.

1. New media are altering established relationships between teachers and students and among teachers themselves. Media are seen to be shouldering increasing burdens of direct teaching and self-instruction. They are also being incorporated in significant ways into the teaching of basic disciplines (such as physics, mathematics, and other subjects). Cross-media packets

are conceived as being essential not only as enrichment but as integral elements of instruction. These are but a few of the effects of the expanded uses of new media. These and other changes introduce new demands on facilities, building design, and uses of space. What do these facts imply for new construction? For modification of old construction? For renovations?

2. Recommendation 33 in Schools for the 60's (A Report of the NEA Project on Instruction) says: "New concepts of space should permit and encourage: (a) varying sized groups ranging from small seminars to multiple-class; (b) independent study with visual and/or acoustic privacy as required; (c) access to a variety of instructional media; (d) multiple use. Key considerations in planning for better utilization of space are: (a) flexibility, and (b) environment which respects the learner and his need for a sense of amenity if his learning is to be most efficient." (p. 105)

   In the light of this statement, what are the implications for the leadership responsibilities of the AV specialist? For the location and facilities of the audio-visual center?

3. What does the "systems approach" (or an instructional system) imply for design and use of learning space and facilities? For the audio-visual (instructional resources) center?

4. What educational and technical specifications should be considered in designing spaces to use educational media of varying kinds for varying purposes?

5. What does the application of advanced technology (electronic communication, TV, data processing, storage and retrieval systems) to the improvement of library and audio-visual services mean with respect to providing facilities and designing an instructional resources center?

Group 6. New Media and the Changing Role of AV Leadership Personnel

Changing curriculum and organizational patterns and expanded use of new media are changing the role of today's "audio-visual director." The concept of an "instructional materials center" or "instructional resources center" is implied in some of the questions following, although references are, for the most part, to "audio-visual center." Likewise, the terms "director," "specialist," and "leader" may be considered as synonomous with "supervisor," "coordinator," or similar designations.

Leadership Responsibilities

1. In the light of recent federal legislation, what responsibilities and/or functions should be carried out by the AV leader? How will his usual duties and responsibilities as a director be modified or changed? What policy support should be expected from the school administration and Board of Education?

2. In the light of today's urgent educational tasks, what alternatives are there to the increased, improved, and more intensive uses of new media? If there are no other equally important alternatives, what does this say about the required roles of AV leaders?

3. Since commercial organizations (publishers and producers of materials and equipment) are also major agents of change, what is the AV leader's role with respect to them?

4. What is the role of the AV leader in obtaining public understanding and support of new media uses and potentials? Is he a promoter, an agent of change? Or does he simply inform? Or none of these?

5. Someone has said that AV leaders should be "generals rather than foot soldiers." How do the expanded uses of new media affect the AV director's advisory, supervisory, and managerial responsibilities?

6. What is the role of the AV leader in relation to in-service education? In relation to the designing of facilities and uses of space for instructional materials center?

7. What designs and space requirements must be provided for the new functions, as well as for the traditional functions, of an AV center? Is there a sequence or order for making these changes? What principles or policies are needed to guide them?

8. Some writers say that an environment which permits optimum use of new educational media will provide for individual, small group and large group learning. Flexibility of space use will be needed as well as compactness of building construction. Properly equipped spaces will be required, rather than a system of relying on the scheduling of items. What does this mean for the services of the AV center?

9. What are the responsibilities of the AV leader in planning for learning space that will utilize the full range of instructional resources effectively and economically?

10. How does the inclusion of ETV and radio as essential parts of the educational program affect planning for space and facility use in building construction? In space and facility requirements of the AV center?

Leadership Skills

1. Dr. David Berlo (Michigan State University) has said that AV leaders are in "the people business." We are paid to affect behavior, produce, inform, gain attitude change, and help others learn what is being taught. What knowledge and skills in the strategy of communication are needed by AV leaders to accomplish such ends?

2. What is the AV leader's role with regard to conducting research and experimentation on new media use, in pointing up their limitations, and in providing for continuous evaluation of their use in education?

Responsibilities re Curriculum and Organizational Changes

1. In view of currently changing curriculum patterns and patterns of school organization and expanded uses of new media, what must the AV leader now know that he once did not need to know? What does he need to do differently than heretofore? How should he prepare himself to carry out these additional tasks and responsibilities?

2. How should the AV leader participate in effecting the changes in curriculum thinking and in school organization now taking place? How should he influence their direction? What is his responsibility for innovating desirable changes? How can the AV director avoid being bypassed when curriculum decisions are to be made which involve new media capabilities? Should he be involved in curriculum decision-making processes? If so, at what points?

The Instructional Materials Center

1. The emerging concept of an instructional materials center (which includes at least a library and audio-visual center) requires a staff with specialized knowledge in library services, audio-visual education, and certain technical and educational aspects of media production and use. Also, such a staff should be conversant with curriculum theory, teaching methods, and research techniques, and have skill in administration. If this is an acceptable statement, then:

2. What should be the staffing pattern of such a center? What competencies are needed for staff members? What preparation and/or retraining are likely to be required for professional staff of such a center?

3. At what level and relationship in the school administrative organization should the director of an AV center be placed?

Why Are We Here?

Tom Shellhammer

Tom Shellhammer is a Consultant in Education Research for the California State Department of Education.

Two purposes stand out as paramount in the planning of this conference: (1) the need to provide an opportunity for key audio-visual and school library personnel, school administrators, curriculum directors, and others to consider the potential and implications of newer instructional media for effecting desired changes in curriculum and instructional patterns of our schools, and (2) the need to explore the possible effects of recent and pending state and federal legislation upon our ability to supply adequate new media services.

Our actions as we move into the last third of the twentieth century may cause trouble for future historians in their efforts to chronicle our work, to identify our perceptions, to appraise the worth of our objectives. For they will know that as we came to this time we were an America having only six per cent of the world's people, seven per cent of its tillable land, but producing 15 per cent of its food supply and nearly 50 per cent of its work. These historians will also be interested in our use of these advantages, in seeing which road we took and why in our efforts to meet new challenges in education.

The old road--the one most of us have trod so wearily--is the road that was carved in the concept of scarcity. This, in turn, has a psychology of scarcity. It was this psychology that enabled men such as Alfred Binet in 1902 to work with tests, but with the concept which caused them to emphasize in their findings a designation of students who were "slow learners"--a label that placed a relatively lower value upon them, as individuals, leading, in turn, to low aspirations and a walling off of these people--by-passing them from the main stream of life. This same psychology of scarcity also led us, down

through the years, to ignore the children of our urban slums and ethnic ghettos. It enabled school librarians to keep good books behind glass doors. It enabled teachers to say to children, "Well, I know you are interested in that; but, you know, we study that next year." It enabled school librarians to say, "Aren't you a little young to read this book?" And it has enabled us to have, in cities of 300,000, only one lone person entrusted to determine whether or not a particular book is a "good" book, suitable for the library shelves. Such, then, has been the old road with its economy of scarcity and its companion, a psychology of scarcity.

But a higher road--one already chosen in the economy of abundance, has a psychology of abundance. This road does not emphasize so much the older idea of profits and costs. The psychology of abundance helps us to humanize education by using the technology of the audio-visual world--to see to it that we intensify the humanization aspect so that children may have some hope of living through the inevitable tensions of a dehumanized urban society. The psychology of abundance has also enabled us to move our entire instructional materials weaponry into the main stream of the revolution in education that is now upon us. This is a situation that brings us hope and aspiration, a dream of quality for all of our young, including those whom we have traditionally neglected and by-passed and, in many instances, labeled as unworthy prisoners of our urban and rural slums.

This, then, is what the future historians may write about us as they ask: Which road did we take? Did we dare to dream of the kind of education that is now needed to carry us through?

Through this conference it is hoped that you will develop guidelines for audio-visual, school librarian, supervisory, and administrative personnel of the schools of this state; guidelines that will give direction and stir new hope for a better future. We seek answers to the question, "What shall we do now?"

You will even be given the opportunity here to dream of those issues for which now there does not seem to be the slightest possibility of obtaining guidelines to action. These issues, and others, have been designated as topics concerning which further study and research must be undertaken if we are to find needed answers. We seek here to determine more clearly the kinds of educational programs we need. What do you think we can do, with the talent here at this conference, to develop and achieve such clarification?

Our Responsibilities For Leadership

J. Graham Sullivan

J. Graham Sullivan is Associate Superintendent of Public Instruction and Chief of the Division of Instruction for the California State Department of Education.

Education in the United States--and in California--is, without doubt, "big business." No other public or private enterprise in America is its equal. With 40 million youngsters enrolled in our elementary and secondary schools alone, and with $20 to $25 billion spent each year on education, it is not difficult to appreciate that this field must be regarded as the very foundation of a free and democratic society. There can be no democracy without literacy of its people. Our "national press" today, as never before, is toward better education.

Several significant questions now face California educators as they seek proper orientation for their work in achieving this goal:

- Question 1. What is the responsibility of the State Department of Education's Division of Instruction in providing educational leadership? Among other things, plans for the reorganization of this Division include three new units for program development and planning, program dissemination, and program evaluation. Efforts will be made to find

optimum ways of translating California's educational needs into desirable legislation. Obviously, concomitant efforts must also be made to find effective ways of working and of cooperating with members of the Legislature, with the Legislative Analyst, and with various interim committees whose interests also lie with educational matters. Implementation of the new Elementary and Secondary Education Act (ESEA)--and particularly its Titles II, III, and IV--will require immediate attention of a large number of State Department of Education staff members, including those in the Bureau of Audio-Visual and Library Education. Careful evaluation must also be made of the immediate and long-term effects of the infusion of federal money into California's educational program and to gain, through this process, a better understanding of the manner in which similar future programs should be administered. New state legislation must also be sought to inject more order into the total educational program.

- Question 2. What is the responsibility of today's educators to improve traditional ways of effecting needed changes in our schools? In partial answer to this question, it seems quite clear we should seek out a great deal more information about our schools and their problems than we have had access to in the past. Current state activities in the area of data processing, for example, suggest one very promising trend along this line. We must define our common goals and move toward them in a cooperative, coordinated effort. One helpful lead comes from activities of quite a number of California county school superintendents who today share in writing and publishing mathematics materials for elementary grades, who prepare and exchange taped television programs, or who organize and encourage the operation of multicounty curriculum committees. County and state offices receiving new federal funds for such activities may now be able to move into many other new areas of responsibility in these and similar areas of activity.

- Question 3. How can California educators develop better means of communicating among themselves and with others? There are many means of effecting improvement of educational communications, most of which are quite familiar to those of you who specialize in "educational media." But it is hoped that one means in particular, recommended in the reorganization plan of the Division of Instruction of the California State Department of Education, may be used soon--that of an Information Retrieval and Dissemination Center. There is much else that can be done in effecting our responsibilities for improving communication.

- Question 4. What is the responsibility of the State Department of Education in guiding and encouraging innovation? It is no longer acceptable simply to "sit and wait" for change to occur. The need is here--now; and the stakes are high. The best minds and talents of the entire state must be employed in actively seeking and evaluating the worth of needed innovations and in encouraging their acceptance by schools. Plans for innovation must be built into experimental projects and made normal parts of the thinking of school personnel at all levels throughout the state. And, at the outset, we must provide also for continuous "built-in" evaluation of all major innovations and projects.

- Question 5. What are the high priority questions of California education today? It is the educator's responsibility--yours and ours alike--not only to ask questions but to ask the right questions. Those most pertinent to the proper conduct of our educational enterprise must be identified, carefully phrased, evaluated, and brought to the attention of all to whose work they relate.

Obviously, the foregoing items represent only a few of the many questions with which we in California are faced today. There are others, of course, and perhaps they are of equal importance. Needs for good answers are paramount for good planning. But I feel sure that this conference will lead to helpful suggestions and point the way toward useful solutions for many of them.

Directions In California Education

Donald E. Kitch

Donald E. Kitch is Chief, Supplemental Education Services, Division of Instruction, State Department of Education. His present professional responsibilities are to serve as chief of the sections within the Division of Instruction and as assistant chief of the Division of Instruction.

The cooperation of educational personnel and agencies within California is more essential today than at any previous time in history. The best leadership resources, sorely needed, must be found and employed wisely in our search for ways of achieving better education for all. Several examples of previous and present forms of cooperation suggest ways in which such resources may be used:

- The Framework Committee on the Social Studies. The work of this 21-member committee during 1955 to 1959 set an important precedent in California education.

- The Mathematics Committee, with 31 members working from 1960 to 1962, produced a framework statement which was adopted by the State Board of Education on the recommendation of the Curriculum Commission. Text materials based on the statement were introduced in 1964 into the first three grades, and will go into effect in grades three, four, five, six, and eight in the fall of 1965. Thus, as of this fall, there will be an entire curriculum based on the "new mathematics" in operation in California elementary schools.

- The Framework Committee in Science, a 15-member committee organized in 1965, is now beginning to plan for curriculum development and change in the sciences.

- The English Framework Committee, appointed in 1964, is now at work on a three-year project. One outstanding feature is the cooperative relationship between the Committee and the six regions into which the County Superintendents Association in California is organized. All six regions have carried on activities related to the work of the English Framework Committee.

- A new Framework Committee on Social Sciences has held its first meeting this year.

It is believed by many that we must now move toward actually producing more and more instructional materials to aid in achieving the objectives of these and other new curriculum programs. The guide, "Our Bill of Rights," is being designed as a teaching guide, to be adapted by individual teachers, for a specific instructional unit in eleventh or twelfth grade social science.

Three bills passed by the 1965 session of the California Legislature suggest ways in which that body continues to interest itself in the problems of education:

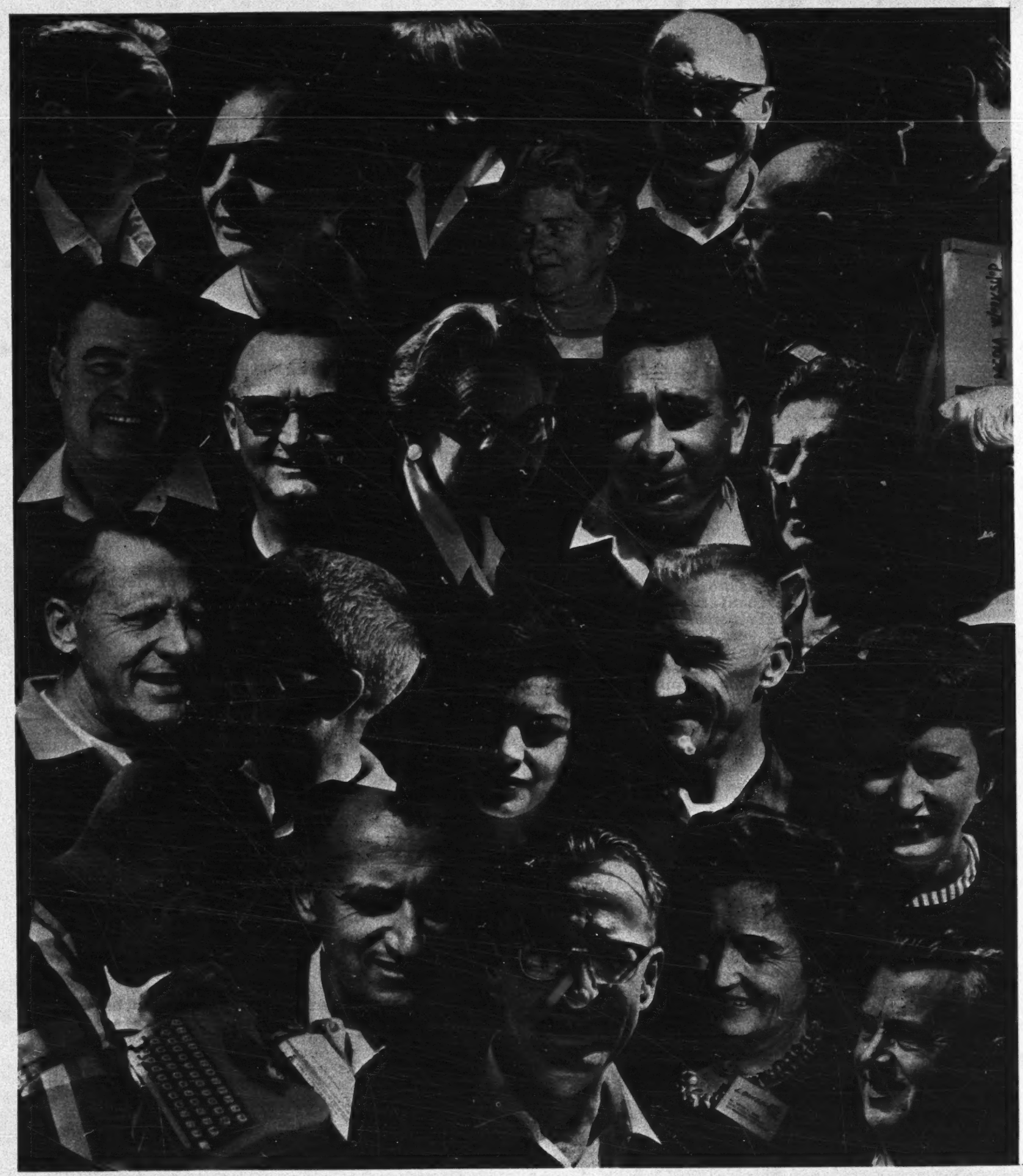
- SB-205, Senator George Miller; a bill to establish a new developmental reading program in the primary grades and to designate certain teachers as reading specialists.

- AB-1331, Speaker Jesse Unruh and others; a bill to establish a contractual relationship between the Department of Education and the Department of Social Welfare in programs of education for pre-school (nursery school) youngsters (an interesting contrast in public attitudes of a few years ago toward such programs).

- SB-482, Senator Eugene McAteer's bill to establish programs of compensatory education in districts qualifying for such aid.

It is essential that all of us concerned with education in California keep in mind the following factors:

- Cooperation, well exemplified by the Framework Committees, is more essential than ever before. We must make use of all the leadership potential in the state.
- There will soon be an increasing need for down-to-earth teaching materials of all kinds.
- There is a present and continuing need to provide adequate opportunities to teachers to upgrade themselves in all of these rapidly changing and expanding fields.



Chapter 2

The National Scene

Senator Wayne Morse of Oregon, speaking at the 1965 DAVI Conference in Milwaukee, recalled one of his earlier statements on the floor of the Senate just prior to the final vote on the Morse-Perkins Act of 1965, when he said:

> American education is now a big enterprise--as some have described it, the biggest industry in our country. If we are to make substantial progress toward better classroom instruction, we need far more than Title III of the National Defense Education Act can provide. We need instructional materials. We need a much greater supply of modern instructional equipment. . . . We need demonstrations, in-service training of teachers, dissemination of information about modern methods, and, especially, we need leadership.

He also stated, with categorical firmness, his belief in the fact that:

> We are of one mind increasingly in this country, and that is that we are determined to see to it that each and every child, no matter what his race, religion, physical disability, or economic status is, shall have the opportunity to share in the birthright franchise this country offers. In its educational aspect, that birthright is the opportunity to gain through education the development of the God-given potentialities of talent and ability.

Presentations in this chapter emphasize the vital importance of such statements. Mendel Sherman set the stage, with his appeal to all members of the educational media profession to assume their own fair share of responsibility in learning how to become effective change-agents in the educational enterprise, after first tracing changing emphases in education and challenges of the near future.

Don White, of the National Audio-Visual Association, then presented a clear, concise summary of provisions of major educational legislation pending (as of August, 1965) before Congress (most of it now enacted). Speaking from the vantage point of many years of experience in the field, he traced previous contributions of NDEA's Title III and compared them with benefits expected to accrue from the new legislation. The charge was clear--and an echo of Senator Morse--when he said: "The main question now centers on whether the state and local audio-visual people have the leadership and the ability to see that their programs are written to include audio-visuals."

Frank Largent, California State Department of Education, NDEA administrator, outlined the past role of NDEA in this state and made several predictions about the future.

Focus on Needs

Mendel Sherman

Mendel Sherman is President of the Department of Audio-Visual Instruction of the National Education Association, and Assistant Director of the Audio-Visual Center at Indiana University in Bloomington, Indiana.

This conference is concerned with identifying and considering some of the important needs which face members of our profession who provide leadership in uses of newer educational media and materials--needs which must be met if we are to take advantage of the great opportunities opened to us by the tremendous amount of work done so far. A few of the needs and challenges facing us which will be examined by you here this week follow.

The Image of Our Profession

There is more awareness of and attention turned toward educational media and media specialists than ever before, although only the surface of what needs to be done has been scratched. However, millions of students are better informed, happier in their learning, more interested, and their parents are admitting more frequently that they are in many ways better informed and more poised than were their parents at the same age.

Industry is designing more equipment directly for school use. Legislators are more concerned with all phases of education than was dreamed possible a few years ago. Never before has the climate been so good for those who want to learn, or for those who want to help supply the tools and procedures needed to get the learning job done.

This image change has been influenced by a number of forces: the knowledge explosion, including technology; the population explosion; the teacher shortage; and most significant of all--the influence these factors have had on legislation. Beginning with the NDEA Act of 1958, legislation has promoted educational media in three main categories: (1) materials and equipment, (2) research, and (3) manpower.

The legislation of 1958 stimulated a great flow of equipment and materials into the schools, and engendered a multitude of requests for standards or guidelines to enable a school or school system to proceed with equipment for their instructional programs. Last month DAVI officially adopted guidelines for elementary and secondary schools for the current year, which North Carolina and other states are adopting--sometimes as standards rather than guidelines.

DAVI, however, is concerned with more than equipment and materials standards. Among the nine concerns identified by that organization, five dealt in some way with manpower and personnel--the supply, the need, their training, and their certification.

The recent White House Conference on Education emphasized that what students know is due, at least in part, to the instructional programs of

the schools they attend. We need to take a good look at these instructional programs, consider how they got that way, and whether or not they represent the optimum.

Some Changing Emphases in Education

The older approaches to instructional evaluation have given rise to certain emphases in education which are now undergoing change:

- From the group to the individual, including small groups, through the development of such things as multiscreen presentations, filmstrips, 8mm films, programmed texts and machines, and computer instruction;
- From memory to inquiry;
- From graded schools to non-graded schools;
- From self-contained classrooms to the self-contained school with an instructional media center;
- From rigidly scheduled schools to flexible scheduling;
- From the teacher as a general practitioner to the teacher as a member of the team; and
- From viewing the school plant as serving children for nine months of the year to a school plant reflecting the needs of society on a twelve months' basis for all age groups.

Challenges for the Future

Possibly our greatest need is to focus on the dynamics of change itself, and to understand and anticipate the psychological reactions which occur in people when change is proposed, including the normal reactions of ignoring, rebuttal, and name-calling. A daily routine, the image of the teacher as the mediator for all learning, skills and values based upon existing content, methodology and tools, provide a hectic but comparatively comfortable framework, and no dislocation which will bring discomfort is automatically welcomed. All of us want to maintain, not destroy, the society wherein we have found our place.

The need now is to understand this, and to help create the conditions which will stimulate people to want to change. We must start where people are, and at times be satisfied with small changes. Educational media and media specialists will help bring about revolutions in the instructional program, but not every change need be a revolution. Much progress can be made by helping teachers and administrators do better the worthwhile things they are trying to do here and now.

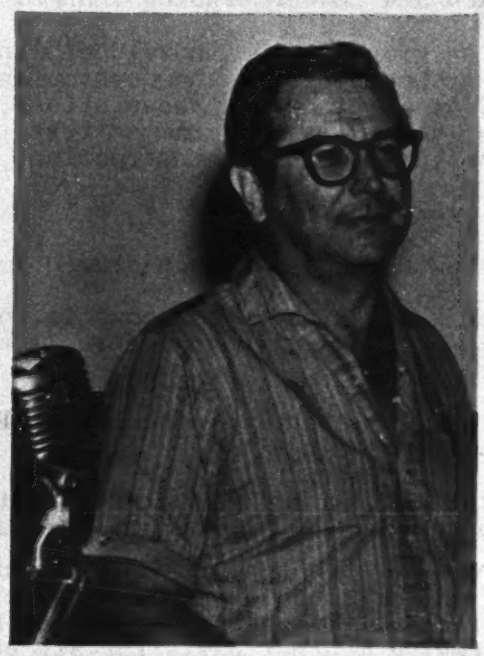
The major challenge, then, is identification. Historically, our field has been identified with communication, with learning, with providing the best conditions possible for the education of our youth. To help pupils learn better must continue to be our main objective. Our great identification must be efficient education, with any particular realm of technology subordinate to this.

If we identify ourselves with providing maximum environmental conditions for the best learning, we will:

- Be aware of changing emphases;
- Be willing to keep open minds and be receptive to change;
- Understand why people resist change;
- Provide conditions which will make change an exciting adventure rather than a traumatic experience;
- Examine constantly our values, objectives, and procedures in order to direct change for maximum good of students;
- Elevate our own sights in the use of technology; and
- Know what changes should be accomplished by administrative edict and which by cooperative leadership.

Challenge of New Legislation

Don White



Don White is Executive Vice President of the National Audio-Visual Association. His present professional responsibilities are those of association executive.

The first breakthrough toward solving the old problems in the audio-visual field of inadequate budgets, lack of trained manpower, and little or no pre- or in-service teacher training in the utilization of audio-visuals came when Title III of NDEA was inaugurated, making funds available on a matching basis for materials and equipment purchases. Last year, the second prong of the problem was attacked when Title XI was added, providing for the training of educational media specialists, and through subject matter institutes, for the training of many thousands of teachers in educational media utilization.

This year, DAVI and NAVA have asked Congress for aid in solving the remaining segment of the problem--pre-service training for teachers. This program is contained in an amendment to the higher education bill, proposed by Senator Ralph Yarborough of Texas and supported by the majority of the Senate Education Subcommittee. It provides three major programs, as follows:

- Matching funds for the purchase of instructional equipment and materials for use in institutions of higher education, in the same subject areas as now covered by Title III, plus Education.
- A matching program for acquisition of closed circuit TV equipment for institutions of higher education, and of materials for use with this equipment, in the same subject areas.
- A separate expenditure of five million dollars a year for institutes and workshops to train college faculty and college educational media specialists in the use of new media in order to insure proper utilization of materials and equipment.

If this new program passes, it will achieve within a few years a revolution in the instructional methods in our institutions of higher education which train teachers.

NDEA - Present Legislation

Since 1958, $290,000,000 in matching government funds have been spent for equipment and materials acquisition under Title III, through fiscal year 1965. And the trend, at least for now, is up, with an appropriation of 79.2 million requested for the fiscal year 1966. The Bureau of the Budget, however, has questioned whether Title III will continue to be needed in view of the large amounts of grant money now available through the Elementary and Secondary Education Act.

Current Appropriation Bills

The current situation of educational appropriation bills, both present and proposed, is as follows:

- H.R. 7765, which provides appropriations for the Department of Health, Education, and Welfare, and includes money for the NDEA programs, will probably be ready for the President's signature later this month.
- The supplemental appropriation bill, which includes funds for the Elementary and Secondary Education Act, is presently being held in the House. Monies should be available by late September.
- S. 1483, passed by the Senate in June and being considered by the House, provides half a million dollars a year for materials and equipment in the arts and humanities. It is likely to be passed this year.

The Elementary and Secondary Education Act

Because many members of Congress are convinced of the value of new educational media, NAVA and DAVI were able to secure the inclusion of audio-visual programs of one sort or another in every title of Public Law 89-10, the Elementary and Secondary Education Act. Titles I, II, and III of this act establish sizeable programs, each of which makes specific reference to the new media for instruction, but leave it up to local educational agencies to decide how to spend the large sums of money involved. These funds should be available later this year, and will revert to the government if not spent by the end of the fiscal year.

Major problems for the year 1965 under ESEA will center on the difficulties of beginning new types of educational programs and hiring new personnel after the school year is under way.

- Title I authorizes slightly more than one billion dollars for expansion of education of children of low income families. New programs probably cannot be instituted during the present school year; however, if school systems restudy their needs in light of future plans, and consider such things as permanent installations in classrooms, constructing educational media centers in each school building, equipping classrooms individually with film libraries, projectors, tape recorders, and so on, much of the equipment for future new programs may be purchased under this title.

- Title II has considerable potential for libraries and audio-visual departments. It provides $100 million for the purchase of materials. The chances seem strong that more than one-fifth of this money will be spent on audio-visual materials.

- Title III is funded to create centers to furnish services and provide demonstrations to school systems. Instructional materials and equipment centers play an important part in this concept, as the traditional instructional materials centers can be expanded to provide materials as well. Title III can also provide for audio-visual demonstration schools and other projects involving the increased use of audio-visual materials and equipment.

It is important to bear in mind that many departments and special interest groups will be trying to influence school systems in their use of ESEA money. The amounts allocated to instructional media and materials will depend largely on the leadership of media specialists, audio-visual people and librarians, especially at the local level.

NAVA is preparing a number of aids to be made available to educators at the local, county and state levels to assist in planning for optimum use of the opportunities presented. These include sample projects which local school systems can use as models in making project applications, sound filmstrips on the instructional materials center, and the elements of a program to improve instruction.

Lack of money to promote use of educational media in the schools is no longer a valid excuse. The main question now centers on whether the state and local audio-visual people have the leadership and the ability to see that their programs are written to include audio-visuals.

Changing Role of Education in Relation to NDEA

Frank Largent

Frank Largent is Chief, Bureau of National Defense, Education Act Administration, California State Department of Education. His present professional responsibilities are for administration of the NDEA in California.

The educational role of the entire world is changing very quickly. Federal legislation is providing tools for educational change; however, we must keep in mind the end to be achieved and not let the manipulation of the tools overshadow what we mean to accomplish.

Education - Past and Present

In the first half of the century the emphasis in education was on quantity, and legislation was oriented toward compulsory attendance for all of the nation's youth. In the second half of the century, however, this has changed, and we now are concerned primarily with the quality of education and with the conservation of our intellectual resources. This means that we are living in a state of change, brought about by the spectacular increase in scientific knowledge. NASA has reported that fifty per cent of today's grade school children will be employed in occupations that do not yet exist.

Textbooks alone, published after the fact, will no longer prepare our children adequately. We must look to other means of up-dating our educational curricula and providing the knowledge and background to prepare our children to cope with their world of the future. We must use modern technology--the systems approach--in education to answer the question, "How can we best conserve the intellectual capacity of our children?" and must make more use of the knowledge available to us at the level children can understand. New ways of doing this must and can be devised through new media.

There are five things educators of today can do and be aware of to keep abreast of the pace of change:

- Encourage creativity;
- Encourage communities to change;
- Maintain flexibility in our educational structure;
- Encourage a systems development approach to education; and
- Be aware that change is evolutionary, not revolutionary, and that it must fit into a long-range plan.

National Defense Education Act

NDEA is a good example of a tool which can be used by educators and leaders in education as we nurture change. The National Defense Education Act became law in October, 1958, as Public Law 85-864. One of the major strengths of this legislation is that it provides funds to strengthen programs at the local, not the state or federal, level. In 1964 the NDEA program was expanded through amendments to include the subjects of science, mathematics, language, history, geography, civics, English, and reading. The sum of $90,000,000 was allocated to institutes in reading, history, civics, geography, and to educational media specialists and teachers of disadvantaged youth.

There are many strengths in NDEA programs:

- Districts are encouraged to identify their own needs and develop plans to solve their problems.
- Personal contacts are maintained with local districts, bridging the gap with federal aid programs.
- Field personnel have been used, and continue to be used, in advisory capacities and in project evaluation.
- States have had great flexibility in determining the direction of their plans and in administering them.

There are, of course, weaknesses in the NDEA programs:

- There is a very real question as to how more assistance may be given to the very small districts in a state.
- A written application for aid, which does not necessarily denote what is needed to upgrade a program, must be made.
- Funds must be reallotted in terms of federal government operation.
- Extension of funds is indefinite. More planning time is needed on the part of schools and districts as it is difficult to anticipate and implement the use of funds in the short time available.

The Technological Revolution in Education

James D. Finn, Donald G. Perrin, Vincent San Filippo, Will Brydon

James D. Finn is Chairman of the Department of Instructional Technology, School of Education, University of Southern California. He is currently serving as head of a special technological project.

Vincent San Filippo is a Douglas Aircraft engineer and a graduate student at the University of Southern California.

Will Brydon is Executive Director of the Project in Production of Prototype Instructional Materials at the University of Southern California.

Donald G. Perrin is a Visiting Assistant Professor at the University of Southern California.

Purpose

Our purpose is to demonstrate the techniques of multimedia use designed principally for large group instruction, presenting both the broad sweep of the revolution in instructional technology which has occurred in the last decade, and how the resulting techniques can be applied. (Use of techniques was subsequently illustrated by a pictorial account of "The Battle of Gettysburg," using multimedia approaches for large group use.)

The technological revolution in education is part of the larger revolution making us plan to land a man on the moon, that in the field of cybernation makes us develop computers and other complex electronic equipment, and in the field of communication has led us to beam messages to satellites.

It is within this context that we must view what is happening in education. The causes are familiar to all of you: exploding population, exploding knowledge, social revolution (race and poverty), and others I need not detail. The result of this "revolution" is a need for a <u>better education for everyone</u>--to bring everyone up to a level where he can exist in this world and also make an effective contribution to it. This means, among other things, that we must pay adults and young people to go back to school, and we must pay them to stay in school. This also means that we can and must do more for the teacher. Some aspects of this problem--helping the teacher--can be solved by the use of machines and by instructional tools. We hope in our demonstration tonight to show you some of the possibilities.

Background of AV Growth

From the beginning of the AV movement in the twenties until 1955, the growth of what are now termed "conventional materials" took place. The last decade, 1955 to 1965, has been an explosive period in the development and experimental use of equipment and materials. Television and programmed learning are obvious examples of this "explosion."

Observable Trends

From an analysis of what has been happening in this decade, these trends are observable:

- From kits to systems--organized, planned instructional units designed to control the learning-teaching process. This development has made possible large and small group instruction.
- Organization of a full series of motion pictures into a course or program of instruction. These are no longer "aids," rather they are central to the program of instruction--for example, film courses in physics, chemistry, and AIDS.
- Curriculum revision is essentially a revision in materials; the focus is on a carefully developed curricular design with precise and controlled procedures used in a systematic manner.
- Development of packets of materials with built-in techniques and controls which provide a variety of approaches to learning designed to meet the needs of individual students.

Changes in School Plant Facilities and School Organization

Trends such as the above in materials and equipment have brought about and continue to bring about changes in school plant facilities. Conventional groups in conventional classrooms are giving way to new patterns of classroom organization. MPATI (Midwest Programs of Airborne Television Instruction) has given every student a favored viewpoint in a large "classroom" which cuts across boundaries of districts and borders of states. Television has led to team teaching--television instructors and the classroom teacher make up the team.

New ways of using conventional materials and pieces of equipment in combination are proving effective for large group instruction (as this demonstration will show). We have been experimenting with multimedia and multiscreen use, obtaining learning feedback from students with remarkable results.

Transitional between facilities for large and small group instruction has been the language laboratory for which schools in the last five years have spent more than $100,000,000. These have developed from simple devices to sophisticated electronic units; some language or learning materials have fallen into disuse for lack of material support.

Reading devices are many, no longer just individual machines but devices installed or used in study areas for small group or individualized instruction.

Teaching machines, originally designed as testing machines, have, after years of experimentation (Pressey and Skinner), been developed into effective devices. Based on the learning principle of reinforcement to elicit desired behavior, these devices come in every form from simple programmed texts to "slide-tape" machines, to more complicated machines. Although they are still "tutorial" instructional devices, the approaches now being used in the treatment of content are more imaginative and better adapted to the varied needs of the individual learner than before. (The Job Corps is experimenting with teaching machines.)

Paralleling the development of devices and materials for large group use is the development of media and equipment for small group instruction exemplified in the progress now being made with eight millimeter film. Magnetic striping of the film with sound is increasing the potentials of the 8mm film for small group instruction.

What we have been witnessing in the field of instructional technology is a division of function--one device or medium does not replace another but "functions divide" and more devices do more jobs, each perhaps more specialized than before.

Computerized instruction is one of the more recent developments. It is off to a slow start but the next decade should bring rapid developments in this field.

Helping the pupil to control his own learning is one of the advantages of computerized instruction. The instructional systems laboratory where ten to twenty pupils can be served by a larger computer has more potential uses, which are now being tried experimentally. In this system, the teacher is able to monitor the progress of the pupil by drawing on the mass of data the computer has compiled about the individual learner.

Simulated facilities for training school administrators are also being tried experimentally.

Summary

Even though classrooms have changed in color, design, and decoration, this is not enough. Architects (and administrators) have not paid enough attention to media problems and implications of the revolution in instructional technology now taking place. Much needs to be done before school plant classrooms are adequate. Audio-visual leaders have a responsibility here. We cannot stay behind or just keep up; we must get up and run. If we do not 'pick up the ball' others will pick it up for us. That is what the technological revolution means to us.

Chapter 3

Curriculum Trends and the New Media

The values and varied uses of educational media of many different kinds are becoming ever more apparent in today's teaching. Changed viewpoints with respect to curriculum, realization of the need to educate each child to the full limit of his potential, and increased understanding of the many valuable contributions of various creative approaches to teaching and learning serve to emphasize the urgency of providing greatly enriched educational media services in our schools. The conference speakers whose thoughts are summarized in this chapter discussed these current curriculum trends and suggested their implications for new educational media in several curriculum areas: social science, language arts, science, mathematics, foreign languages, and pre-service and in-service education of teachers.

Curriculum Trends in the Social Sciences

Howardine G. Hoffman

Howardine G. Hoffman is Assistant Superintendent of Curriculum and Instruction in Los Angeles County. Her present professional responsibilities are in program planning, research, and development through the work of consultants in curriculum and instruction, educational media, research, guidance, and evaluation.

The 1960's may well be recorded in the history of education as the period of major reform in the social sciences, as we seek to develop socially responsible, fully functioning, knowledgeable individuals concerned with the great issues of our times. Scholars in the social sciences are currently seeking answers to such questions as:

- What is the nature of the discipline, i.e., what is its structure, what knowledge does it contribute to the profession, how is its domain changing, what modes of inquiry does the discipline employ?

- What important ideas, notions or generalizations does the discipline contribute to the growing body of knowledge that an individual needs to know in order to function in a responsible, self-directing manner?

- How are current developments in the discipline being disseminated to the field, to laymen, to the teaching profession, and to students?

Because of the nature of the phenomena with which the social sciences are concerned there is great overlapping between the fields of study. It is significant that throughout the nation geographers, historians, political scientists, economists, sociologists, anthropologists, psychologists and those versed in communication arts are engaged in critical examinations of the content and structure of their respective disciplines and of their modes of inquiry.

Of special significance to education for the future is the fact that scholars in both the social sciences and in education are beginning to work together to identify ideas, notions, or generalizations that should guide teachers in making decisions about curriculum content in such fashion that inquiry is elicited on the part of students.

Current trends in the social sciences and trends affecting both the social sciences and/or social studies curricula are:

- The social science disciplines (one major source of curriculum content) are undergoing rigorous re-examination by scholars within each discipline as well as on an interdisciplinary basis. Interrelationships between the disciplines and their several branches are being defined and described.

- Relationships between the social sciences and social science and social studies curricula are becoming more clearly delineated.

- Scholars from the several fields of knowledge and educators are beginning to work together in search of better solutions to the question: "What to teach and to what end?"

- Concepts and generalizations from the social sciences help to shape teacher objectives and provide one basis for decisions about curriculum content.

- Content in the social studies emerges from elements of the culture, concepts and generalizations from the social sciences, realities that students experience, and major societal issues.

- The goals of the social sciences and the social studies curricula are undergoing rigorous reassessment in light of new knowledge about learners, learning, thinking, and nature and structure of knowledge; in relation to changing needs of society; and in view of great advances in technology.

- Broad goals relating to knowledge, attitudes, understandings, values, and skills are being translated into specific behaviors.

- Behavioral goals give direction to teachers in planning learning opportunities or activities for each individual learner, and also give direction in the utilization of new materials and media in relation to the purposes that are sought.

- Learnings in the cognitive domain (i.e., recall or recognition of knowledge and development of intellectual abilities and skills) are receiving increasing emphasis.

- Approaches to learning stress discovery, problem solving, simulation, models, and divergent and creative as well as convergent thinking.

- Increasingly, curriculum planning and development are concerned with all levels of education from early childhood to post-high school. Sequences of content and experience are ordered for reinforcement.

- The spiral approach to the ordering of learning sequences is receiving favorable assessment.

- The classroom is being viewed as a laboratory for learning and the school, community, and even distant points are seen as places where students apply, test, and evaluate what they have learned.

- The most far-reaching proposals for curriculum and instructional innovations are being initiated by sources outside of the school. In general they emphasize the cognitive domain.

- Advances in communication media are exceeding advances in production of program materials suitable for school use. The implications of such media are far-reaching. Their use must be keyed to the goals that schools seek to achieve.

- The availability of new money from the Federal Government and other sources is bringing about accelerated activity designed to influence various facets of education. Innovations in curriculum, instruction, and media need to be carefully designed with a built-in plan for evaluation.

Forecast for English

Frances H. Adams

Frances H. Adams is language arts consultant, Los Angeles Unified School District.

Important assessments of the objectives and content of language arts are in progress throughout the country, but another year or two of collation and interpretation are necessary before outcomes will be available. Basic differences continue between: (1) groups that would like to use the term "English" and who define the subject as a tightly organized discipline with a body of content and a set of skills to be taught sequentially, and (2) groups that use the term "language arts" and organize learning around the behaviors of listening, speaking, reading, and writing.

Ferment in the field today stems from the 1958 Basic Issues Conference, held under the auspices of the American Studies Association, the College English Association, the Modern Language Association of America, and the National Council of the Teachers of English. Thirty-five basic issues came out of this conference, stating in sum that English is English rather than language arts, and that it is a discipline with three aspects--literature, language, and composition. Subjects such as public speaking, journalism, remedial reading, and others were questioned as not being part of the discipline.

In California, a State Advisory Committee for an English Framework was appointed in June, 1964. The thirteen committee members see the development of a framework statement as a three-year task to culminate in reports to the State Curriculum Commission and to the State Board of Education by May, 1967. The report of this committee is expected to have a great deal of impact on local programs.

There are also numerous research studies in progress on the national scene; twelve of them at major curriculum study centers under the leadership of the Cooperative Research Branch of the U.S. Office of Education. Materials from these projects, however, are not as yet generally available.

Another nationwide study of crucial importance is an investigation by twenty-seven educational agencies of various ways of teaching beginning reading. For this study, also, the data are in process of collection, and should be available next year.

Critics of materials published by the 1958 Basic Issues Conference have pointed out numerous flaws: little attention is given to individual differences, to the motivations, interests, and needs of children, to variations in goals and aspirations of different segments of society; the program is frankly college oriented; there are scant concerns with the creative aspects of writing and with the wide range of contemporary literature. Nonetheless, these materials are having tremendous impact upon educational policy and practice.

A second major influence upon present activities in the field of language arts was the publication in 1961 by the National Council of Teachers of English of a survey of the preparations and backgrounds of elementary, secondary, and college English teachers in the United States. The survey showed that only 50 per cent of English teachers had the equivalent of a college minor in English. The extension of NDEA funds to the field of English in September, 1961, is commonly attributed to publication of this report. Now, in 1965, institutes for teachers of English are being provided on many college campuses.

The new media are also making important contributions to the field of language arts in this field of in-service education by supplying:

- Film and television presentations on aspects of content, such as linguistic knowledge; methods and procedures; and the thinking of leaders in the field
- Information for high school and college students designed to encourage more of them to enter the field and to prepare adequately for teaching English
- Illustrations of exciting activities carried on in classrooms to stimulate better learning.

It is hoped that audio-visual people generally will continue to think of this as an important aspect of their programs.

Several current practices may serve as indicators of trends in the teaching of English:

- Short film clips, focusing upon a single idea and usable individually by students, are being developed.
- Concern for the language handicaps of economically deprived and culturally disadvantaged children is promoting development of programs designed to help them be participants in rather than onlookers of the contemporary culture. Audio-lingual experiences, both for the culturally disadvantaged children and those from various ethnic backgrounds, are vital to this program.
- English language training techniques for use with children for whom English is a second language have possible significance for all language arts programs. Important facets are: (1) assigning larger blocks of time, such as an entire morning, to language learning, (2) enrolling pupils in classes on the basis of the stage of development in language skills rather than in terms of chronological age, and (3) first establishing oral language firmly, then developing reading and writing.
- Texts which portray youngsters from varied ethnic backgrounds participating in school and community activities together are beginning to be developed. Detroit's materials for the disadvantaged, which deal with a Negro child in an integrated community, occupy almost a unique position at the moment, but it is predicted that within a year all responsible publishers will be offering texts which portray life in an integrated society.
- There is general agreement among English specialists that language study, traditionally known as grammar, will be the area of maximum change. There begins to be a consensus that the transformational or generative grammar, with its inductive approach to language, holds great potential for secondary school students. The reinforcement of readily available materials, both basic and supplementary and particularly in the audio-visual field, will be highly important in developing this change.
- There is a growing awareness that there are many dialects in English and many levels of language use, and that there is no "right" or "standard" dialect. Variations in language characterize, among other things, geographic regions, social and ethnic groups, educational, professional, or occupational activities. Educators are now defining new goals that prize diversity and free people to move widely in our culture.
- The makers of curriculum for the language arts are recognizing that numerous learnings are desirable about the structuring of personality which any language imposes on the people who speak it. Contributions of general semantics in stressing the relativity of meaning can be included early in the experiences of children.
- Those who believe in the transformational-generative approach to language feel that composition fosters the use of a varied sentence structure, makes punctuation a simple matter, and affords new insights into phonemic principles that govern spelling. Concerns over the performance level of student writing are aimed at inducing both a greater degree of skill and an increased quality of thinking. There is much research in progress concerning various approaches to composition, and much exploration of the ways in which criticism and evaluation of student writing can best be accomplished.

- The new linguistic knowledge is generating many proposals for new ways of organizing learning in the fields of reading and literature. All are concerned with the ways in which relationships of word sounds to printed symbols may be indicated. Another source of proposals is the present examination of the sequence of early learnings in the language arts.

- Concern with reading focuses not only upon approaches for the beginner, but upon ways of adapting and extending the ability in the fields of mathematics, science, and the social studies. Needs seem to center upon the extension of both skills and interests.

- Recent emphasis on the development of concepts and the intellectual aspects of learning has stimulated debate on several issues connected with the field of literature, such as meager ideas presented to children by basal readers and the literary quality of literature for children. The two areas of sharpest controversy are: (1) is there a sequence in experiences with literature which can be established from the elementary school through the university to assure some acquaintance with a common heritage, and (2) where should the major emphasis of instruction in literature fall--upon form and structure, critical analysis to develop criteria for determining the quality of a piece of literature, or upon the insights that literature can give into personal, social, or historical aspects of living?

- The current concern with a common heritage is leading to development of culture studies that interrelate literature, music, art, language, and customs at both the elementary and secondary level. The concern that within this program there be a central emphasis for literary instruction has led to instruction emphasizing depth rather than mere coverage. This shift from wide coverage of a field to exploration in depth calls for a very different use of materials now available and a need for other materials presently in scarce supply. Many visual and auditory materials illustrating the culture within which the pieces of literature are imbedded are desirable.

- Contemporary literature taught in the matrix in which it is popularly found--paperbacks, periodicals, current sources for literary criticism--is also on the increase, and taped, filmed, or video materials are recognized as part of the literature of our time. Teaching is designed to foster the emergence of criteria for making critical judgments, and analysis is intensive rather than discursive.

Additional trends and issues in the language arts field, along with itemization of some of the problems, follow:

- Philosophy shifts as different aspects of the teaching of English are approached, such as comparison of what is said about teaching reading to disadvantaged children and current opinion on teaching archetypal literature--mythology, folklore, and legend--to third grade children.

- There are difficulties in the attempt to unify thinking around the three strands of language, composition, and literature. Specialists in elementary curriculum continue to find the four behaviors of listening, speaking, reading, and writing a functional way of organizing the learnings in the language arts and are less than happy about using the term English for the subject field.

- Certain phases of instruction, such as public speaking and journalism, seem to be greatly diminished. Personal growth, social development, and value formation find little place in current discussions of English.

- Though all agree that the various strands of the language arts or the English curriculum need to be interwoven, little attention has been given to ways of accomplishing this union, particularly in secondary schools and colleges; rather, segmentation seems to be on the increase.

- Concerns with sequence seem to center on content offered and skills taught at certain grade levels rather than on concept development and increasing language power on the part of the individual.

In the language arts, as in nearly every aspect of education, there is evidence of struggle and change. At least there are many good minds working at common problems and much data being assessed to find reliable answers.

Science, Process, The Learner: A Synthesis

Abraham S. Fischler

Abraham S. Fischler is Professor of Education, University of California at Berkeley. His present professional responsibilities are in the field of science education.

Among the many different groups involved in the development of science materials for elementary, junior high, and senior high schools there appears to be one area of general agreement--the need to move away from science as the accumulation of facts and toward emphasis on the "content" of science. The emphasis has changed from the ability of the child to regurgitate scientific facts to the ability of a child to utilize his newly discovered concepts in carefully selected learning situations.

In the literature, the dichotomy seems to be between content and process, although it ought to be between isolated factual teaching and isolated process teaching, as neither one results in a synthesis of ideas or in the development of intellectual models on the part of the child. This dichotomy, however, is not "real." Content consists of the synthesis of facts and conceptual schemes developed as youngsters assimilate their observations and their analyses. It seems necessary that teachers understand the nature of the scientific enterprise, the notion of inquiry, and the cognitive processes through which the learner can develop the conceptual structures which will enable him to look at the world more intelligently. All the new programs seem to be moving in this direction.

Scientific Enterprise

Scientific explanation avoids that which is non-testable in principle; it is descriptive in the sense that it refers to things or events, or aspects of things or events, and the connections among them. The most useful relationship between theory and data is one in which constant testing and revision of hypotheses occur on the bases of the most accurately possible observation of data. The theory that a conceptual structure must exist within which experimentally determined facts should be taught is bolstered by the following arguments:

- Knowledge is growing rapidly within the scientific enterprise. It is estimated that our scientific knowledge will double within the next ten years, possibly outmoding many of the scientific "facts" of today.

- The nature of the scientific enterprise encourages an individual scientist to publish, both to gain recognition and to add his new knowledge to the accumulation of other experimental facts in the hope of formulating a concept, generalization, or theory. Publication encourages other scientists to make independent verification of knowledge or perform additional experimentation to reconcile differences in findings.

- Development of new instruments and techniques enables scientists to view phenomena more closely and accurately, thus producing new hypotheses and enlarging the number of experimental facts which might alter concepts, generalizations, and even theories.

- Within the enterprise, the search is for closer and closer approximations to the "truth." The willingness to regard all scientific statements, from those about discovered data to those of "laws," as subject to possible modifications, has had highly useful consequences for scientific inquiry.

- The usefulness of scientific inquiry may be measured by the extent to which its results facilitate explanation, prediction, and, on occasion, control of events.

"Inquiry," Discovery, and Problem Solving

Inquiry is not only a technique or method; it is a way of looking at one's environment, encompassing both attitude and ability. It is more than discovery. If planned correctly, it results in the acquisition of knowledge as well as utilization of that knowledge as process. Science learning can be viewed as a skill, if the content is considered as something to be used as an instrument in the learning of still other content. Thus, learned concepts may be used as tools essential to the solution of new problems. Joseph Schwab[1] has defined inquiry as being of two types:

- Stable. Stable inquiry tends to "fill in the blank spaces in the growing body of knowledge. It proceeds down an established path governed by existing principles and generalizations. Stable inquiry is not concerned with new principles."[2]

- Fluid. Fluid inquiry focuses upon theories, taking into account information discovered by the stable inquirer and trying to discover or invent new relationships, theories, and constructs which then open up completely new lines of inquiry for the stable inquirer. Not the solution to a problem, but the formulation of a theory which will bring about a new series of problems is the goal of the fluid inquirer.

The Pupil

Several cognitive psychologists concerned with children's thinking have expressed pertinent views in their works:

- Piaget contends that children go through three stages whose order, although not necessarily the time of their appearance, is constant. These stages are: (1) pre-operational, (2) concrete, and (3) formal. The concrete level occurs at the approximate age of six and continues to age 12. He discusses four factors contributing to intellectual development --nervous maturation, experience, social transmission, and equilibration--and maintains that the factor of equilibration, where the individual is involved in active coordination of his own development, is the most important. It calls upon the child to become active; it calls for intellectual transformation--for a series of accommodations, followed by assimilation, followed, in turn, by the introduction of some new discrepant event which again forces accommodation.

- Jan Smedslund did important work with children which showed that teachers must be more selective in what they choose to teach, allow time for students to work, and give them time to accommodate to the new data they must assimilate in conceptual structures. In his work, he demonstrated that children who had assimilated knowledge of the conservation principle over a period of time were able to maintain their sureness of it much better than those who had had it demonstrated to them only a few times.

Examples from Projects

Several examples follow which illustrate the concept of leading the child to form a conceptual structure which will have meaning to him and which will enable him to make predictions about what will happen under certain circumstances.

- Concept of probability (from Variation and Measurement, produced by the Science Curriculum Improvement Study). The lesson begins with illustrations of the variation in the shape of leaves from different kinds of plants and then from the same plant. Children are then introduced to the variation of the number of peas in pods. They count and record the number of peas found in each pod, and summarize the information on a histogram, which is subsequently developed on the board with a frequency distribution of the number of peas in each of 45 pods. Additional lessons utilize the histogram as a way of organizing data by using weight charts in relation to age, height charts in relation to age, etc. Through a series of carefully selected activities, children begin to realize that there is such a thing as variation and develop some intuitive feeling for the notion of probability.

- Concept of natural selection (from Animal Coloration, developed by the Elementary School Science Project). The unit sequence is a series of activities during which children color various organisms and try to blend the organism with an environment. The youngsters soon realize that animals are more difficult to see when they actually blend with their environment.

- Chemical Bonds Approach (CBA course). This approach attempts to organize the study of chemistry around the central theme of chemical bonds. Many of the properties of materials are best understood by associating their bonds as one imagines them to be present. This course attempts to get students to see the intellectual problem involved in attempting to predict the properties of chemical reactions, chemical products on the basis of their understanding of the bonding energies. The students are encouraged to build mental models and to constantly test their model against that which is occurring in the laboratory. When the laboratory event does not fit the model, students must alter the model so as to make it capable of predicting other events.

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[1] Joseph J. Schwab, The Teaching of Science as Enquiry; bound with Paul Brandwein, "Elements of Strategy for Teaching Science in the Elementary School." Cambridge, Mass.: Harvard University Press, 1962.

[2] Ibid.

Teacher Education

Armen Sarafian

Armen Sarafian is President of Pasadena City College, Pasadena, California.

Dickens said, "It was the best of times; it was the worst of times." This is true of the educational media field today. In the old days there was not only lack of knowledge, compounded by inadequate materials, but also a great deal of opposition on various fronts. Today, however, is a period of light and hope. There is no longer a shortage of materials, but maximum use of them for creative teaching is a goal still in the future.

Leaders in education have been saying for years that their goal is individualized instruction--to bring the student from where he is to where he can be, to encourage the child to use his maximum potential. For the first time in history we have the tools with which to do this, and the message must be gotten across in both pre- and in-service teacher education. Emphasis in teacher training must be put on inquiry and discovery.

It is also "the best of times" in terms of the great interest in education evident in this country today. Not only government, but labor, industry, and business are interested in educational tools and processes. The concept of educational media no longer has to be "sold." The systems approach, with its flexibility potential, should result in teachers having time for more creative enterprises--enterprises in which the multimedia specialists can be of great value.

Educators must now change their concept of abundance. There are factors which pose drawbacks to full use of the tools which have been created--(1) lack of money--federal grant funds are not available yet, (2) shortage of teachers who have creative concepts, and who dare to deviate from their pre-service training to explore new media and their possibilities, and (3) attitudes which create dichotomies between teachers and administrators, or between supervisors and educational media people.

More people in the academic professions need more knowledge of multimedia. An audio-visual person, for instance, who leaves the field to go into supervision or administration takes with him media concepts and applies them in fulfilling the responsibilities of his new position.

Needs of Pre-service Education

Pre-service education for teachers in our universities and colleges should include greater emphasis on uses of multimedia for creative teaching. Important aspects of instructional resources education are:

- Support. There is a need to correct misunderstandings in education, as well as a need for great support from instructional resources. Educators must find ways to affect the thinking of their colleagues along these lines.
- Preparation. All prospective teachers should receive training in use of instructional media.
- Cooperation. Academicians are in the majority among our educators. Ways must be found to show them how new media can accelerate the range of pre-service training for teachers.
- Opportunity. We have now the opportunity to upgrade our teachers. Let us use it.

Needs of In-service Education

In-service education for teachers needs strengthening in many of the same ways as pre-service education. Various needs, aspects, and types of in-service education are:

- Quality. There is very little written on in-service education. There is a need for handbooks both for prospective teachers and for leaders of in-service education to show the variety and extent of activities possible.

- One-day institutes. It has been found that one-day institutes if conducted on a lecture basis are of little or no value to teachers.

- Demonstrations. These can be of great value if they are planned to involve teachers themselves in the demonstrations.

- Displays. Instructional resources conferences, including an "Instructional Resources Fair," can do much to excite teachers and tempt them to experiment.

- Study trips. Real success has been noted from one-day trips (families included) for such specialized subjects as conservation, study of tide pools, and so on. Realia collected are identified, slides may be used in darkened buses on return trips, and other resource materials made available.

- Closed circuit TV. CCTV represents an invaluable tool for self-analysis on the part of both teachers and students.

- Workshops. Some of the most effective in-service training has been that of summer workshops, where teachers have the opportunity to develop instructional resources for use in the coming school year. Many, however, are no more than "talk-fests," which can reinforce ignorance and prejudices. Education media people must be conversant with instructional processes, methodology, and curriculum design in order not to share that ignorance.

- Previews. Previews of instructional materials in individual classrooms have proven a good channel to arouse teacher interest.

For optimum use of the tools we have, and for the encouragement of creative thinking and teaching, there should be a graphic artist in every school to help teachers convert their abstract ideas into visualizations. The potential of new media for flexibility in the schools should make it possible for teachers to devote some of their time to this aspect of preparation.

Recommendations

A few important recommendations for optimum use of our knowledge and potential in use of educational multimedia in our schools are:

- Eliminate dichotomies between administrators, supervisors, and teachers. All educators have the same goal--that of better education for every student.

- Encourage audio-visual people to infuse all ranks of education.

- Continue to spot potential audio-visual leaders in the classroom and train them in this work.

- Develop an in-service education guidebook.

- Use a variety of new media in our own presentations.

- Put the focus on the curriculum, not on the hardware. The real breakthrough in education will come in terms of resources, materials, and tools in relation to the curriculum.

The New Mathematics

William F. McClintock

William F. McClintock is Associate Dean of Educational Services and Summer Sessions, Stanislaus State College, Turlock, California. His present professional responsibilities are Extension Services, Director of Summer Sessions, Coordinator of Audio-Visual Education, and Associate Professor of Education.

A major problem facing education today is that research has moved too far ahead of the accomplishments of pre-service and in-service teacher education. One bit of evidence for this statement is the fact that we are not keeping pace with available modern educational media. Some language laboratories, for instance, stand idle a good part of the time because teachers find their scheduling

difficult, or they are used only for practice and drill by students who have the "time," or, in other words, by those who are not college bound. It seems evident, in such cases, that the teachers themselves have not really accepted the curriculum represented by the laboratory.

Each of us today is rechallenged in his leadership role. There have been large purchases of new media throughout the state, but to what end? It is not enough to place equipment in buildings; the director or supervisor must establish a one-to-one relationship, both with the equipment and the teacher, in using it most effectively.

It is important that we know of and give credit for each small effort of teachers to demonstrate creative teaching. One teacher, making one transparency of a textbook page and showing it on a large sheet of wrapping paper, with an invitation to children to come up and explore the ideas it contains, actually may have taken a first step toward leadership in the use of "new media." It is our job to be aware of and encourage such attempts. True, the teacher must expand and improve his techniques, but he must also take that "first step" and, in doing so, needs to hear our praise.

History of the New Mathematics

The need for a new mathematics program came late in World War II when industry became highly critical of the kind of mathematicians turned out by our graduate schools. True, those mathematicians were excellent memorizers, excellent organizers of data, and highly adequate in solving most problems. But the invention of the computer replaced the need for these qualities; the need arose instead for mathematicians who could create problems for the computer to solve.

One of the first groups to give leadership for change was the School Mathematics Study Group (SMSG) formed in February, 1958. This group was asked to prepare materials that might seem best able to aid in the production of more creative mathematicians. The SMSG has just completed a series of tests (K-12) and is now engaged in studying mathematical needs of the culturally deprived.

It is interesting to trace the evolution of the "new mathematics" in California. In 1951, the State of California introduced a new adoption of arithmetic textbooks in Grades 3-8. One feature of these books was that they gave greater attention to the need to understand basic concepts than was true with previously adopted books. In 1957, most of these books, together with books for Grades 1 and 2, were re-adopted. A Teacher's Edition was made available for the first time in an arithmetic series. Teaching methods were suggested.

Still, these textbooks had large gaps. There was little challenge in them due to the great amount of repetition throughout the grades. Although basic mathematical structure was hinted at, it was not sufficient to aid in the understanding of basic relationships. Thus, attention to mathematics in the elementary school was sadly out of balance with other parts of the curriculum.

Too, secondary programs in mathematics were still further removed from the needs of a changing society than those of the elementary school. Most textbooks reflected a rigorous program of memorization and deductive logic with little opportunity for discovery or application.

At the elementary level, the mathematics curriculum has been brought back into balance by: (1) a state requirement in the Fisher Bill of three units of college instruction in mathematics, and (2) a new state adoption of textbooks (1-8) which emphasizes mathematical structure to a far greater degree than previously.

At the secondary level, school districts have gradually passed through the transition of using teaching units such as the SMSG or Illinois texts. These districts are now adopting hard-backed books reflecting both the subject matter and methodology of new mathematics.

In 1959 the Advisory Committee on Mathematics to the State Department of Education Curriculum Commission was appointed. This committee was charged with the responsibility to recommend a mathematics curriculum for grades K-8, to suggest related materials and to propose appropriate preservice and in-service education programs.

The committee on curriculum published its report (The Strands Report) in 1962. Included in it were statements concerning knowledges necessary in the new mathematics. It was unfortunate, however, that the urgent need to procure new textbooks necessitated an overbalance of attention to The Strands Report. Little publicity was devoted to the reports of the other committees.

Nonetheless, great strides have been taken in performing the task of re-educating teachers in-service and preparing teachers at the preservice level. Mass media techniques, such as ETV, have been most successful, but these must be regarded only as first steps. It should be remembered that understanding new mathematics is not enough; it must be applied in a classroom program of mathematics that is broader than that included in any textbook. It must be evaluated in terms of the classroom behavior of the teacher who is asked to use it. Here, there is a long way yet to go.

The New Math: What it is not, and what it is

The new mathematics is not:

- A repudiation of the old mathematics. Common relationships between parts of addition and subtraction have always existed, but these are now more clearly expressed earlier than they used to be. For example, intuitive generalization about equations is introduced in the first grade instead of in the junior high school. The new mathematics presents the old mathematics in a new light and gives new procedures for teaching.

- A series of isolated units. Most research has presented the new mathematics in separate units, and makes it appear as if this were true.

- The use of discovery alone. The new mathematics involves much more than discovery. We hear so much about discovery that we tend to think the student's discovery of basic mathematical principles is all that is needed. This is not true.

The new mathematics is:

- A melding of the old and the new. Very little is actually new, but a step has been taken beyond the older programs. There, meaning was thought to be synonomous with the ability: (1) to manipulate materials, (2) to move to

semi-abstract symbols on a page, and (3) to perform abstract algorisms. Unfortunately, the students were not taught the "why" of what they were expected to do, because not too many of the teachers understand it themselves.

- An integrated whole based on a K-12 program. This program is seen as a spiral curriculum from the kindergarten through the twelfth grade. For instance, the new emphasis on space geometry has made one of the hardest concepts--that of the distinction between perimeter and area--easier to be understood by students. Students learn early that a plane figure such as a rectangle separates its plane into three relationships: that part of the plane outside or in the exterior of the figure, the rectangle itself (a set of points), and that part of the plane that is inside or in the interior of the figure. Perimeter is related to the rectangle, and area is related to that which is inside the rectangle.

- Characterized by attention to maintenance of discovery. When students learn to recognize a particular relationship before the formal name or formal rules are given, discovery has taken place. But more is also necessary; the need to maintain what has been learned. Here a plea is made for more and more attention to programmed materials, tapes, records, slides, etc., to keep the learnings at hand.

Vital Objectives of the New Mathematics Program

Major educational objectives of the mathematics program are:

- To enable each student, within his potential, to understand how and why mathematical systems work as they do;
- To enable students to be agile with mathematics skills needed in adult life;
- To enable students to interpret space through geometric ideas;
- To help students appreciate the expanding role of mathematics in society; and
- To teach students to think critically about mathematical ideas.

Of all these objectives, the last seems the most important. Without its fulfillment, the first four might be achieved only in a routine and static program no more challenging or exciting than previous programs.

Curriculum Trends in Foreign Language

Ruth Parlé Craig

Ruth Parlé Craig is now employed as an instructor in foreign languages at the Santa Rosa Junior College, Santa Rosa, California.

Today's children deserve and need an effective foreign language program to prepare them for the international communication which will be necessary in the twenty-first century. Challenges to the schools to provide such a program are many and diverse, but may be clearly identified and efficiently implemented. Particularly at the elementary level, the program is either strong and significant or weak and ineffective according to the intent of the administrator and the teacher.

Practical aspects and characteristics of important curriculum trends in foreign language instruction are:

- The program should include all children physiologically able to communicate. Research has shown that at the level of basic-language achievement the correlation between IQ and foreign language learning is negligible, there is no proven correlation between the command

of English and the learning of a foreign language, and that the ability to speak correctly depends on the quality of the language with which one is surrounded during the learning process.

- The program should be started in the elementary grades, when children are neurologically and physiologically most able to become near-native speakers. It should begin with short, 20-minute learning periods, scheduled daily, with class time increasing to a full period daily by the seventh or eighth grade, and continuing as a full period during high school and college. In its basic-language stage, learning a foreign language is primarily a motor-skill learning process to create habits of automatic response in correct patterns of speech, and later in reading and writing.

- The same textual materials for Levels One and Two may well be used in an effective language program (a "level" being defined as reasonable mastery of a content consisting of a given set of structures, or patterns of grammar, more or less arbitrarily chosen), irrespective of whether the levels are in grade six or grade twelve. Beginning language courses use materials to teach basic language patterns, with only the complementary-supplementary materials and activities within the methodology changing according to the age level and maturity of the student. Excellent linguistically structured foreign language textual and supplementary materials are now available, including recorded tapes, disks, films, filmstrips, charts, and picture cue books. The good foreign language program uses only the best of these materials.

- The audio-lingual approach has been proved experimentally in the last six or seven years to produce students who communicate well in all four skills: listening-comprehension, speaking, reading, and writing. This approach doubles student proficiency. Based on the discoveries of linguistic scientists, it follows in a highly condensed way the natural procedure of learning one's own native tongue, resulting in sentence and phrase structures controlled by correct speech patterns already under command.

- The audio-lingual teacher should be trained well in methodology, know the psychology of the American child, and know or be learning the language he is teaching. With this background, he can teach effectively by means of tape and disk recordings. The essential principle for the teacher and those who support him to remember is that the young language-learner learns the sound system which he hears first and repeatedly. Therefore, poor quality equipment--records, tapes, earphones--are not only poor economy, but contribute to poor language teaching if the non-fluent teacher must rely on these to teach the sound system and the basic structures.

- TV language instruction has been shown by research to be effective only (1) if the material is linguistically sound, and (2) if the teacher does warm-up preparation with the students before the TV lesson, participates with the class during the TV lesson, and conducts follow-up drills and review both immediately after the lesson and in daily sessions between TV presentations. Of the approximately eighty-five existent programs, however, all but four (two each in Spanish and French) produce poor language experience. The disadvantages of poor sets, poor reception, and poor production of many programs must be balanced against presentation by master teachers already fluent, and of visual aspects of culture and psychology which the language represents. Conversely, a team of TV instruction with a good classroom instructor can be effective in language learning today.

- Language teaching by programmed learning cannot yet be evaluated conclusively. Not only is more research and experimentation with various age groups necessary, but teachers must become more aware that programmed learning, although meeting individual needs in motivation and in remedial or accelerated pace, is more than any other medium susceptible to abuse in the typical, overcrowded classroom. In its present and immediately future state, programmed learning seems to promise little for the elementary and secondary school language learner.

- The importance of evaluation in foreign language learning is gaining increasing recognition. It has three loci of operation: (1) within the classroom, to test the progress of the individual student and the class as a whole, (2) within the local program, to judge efficiency in use of materials, equipment, and techniques, and (3) at each level, to test the quality of preparation and to determine placement as students progress from the sixth grade, the eighth- or ninth-grade transfer point, the end of the first year of high school language, the end of the first semester of college language, and lastly, from any high school level into the college level. The interlevel student evaluation and placement at the end of a given level is the locus of increasing interest this year and next, and is of prime concern to administrators, counselors, and teachers. Increasing numbers of institutions of higher education are giving evaluation and placement examinations in all four language skills to entering students. In some institutions such tests are departmentally prepared, but the examinations prepared by the Modern Language Association and the Educational Testing Service (MLA-ETS) are becoming highly acceptable. To date, however, national tests do not include evaluation of student preparation and course content for the elementary and eighth- or ninth-grade transfer point. This last year a series of district and regional efforts have been initiated to create, or subsidize the creation of, such tests in California.

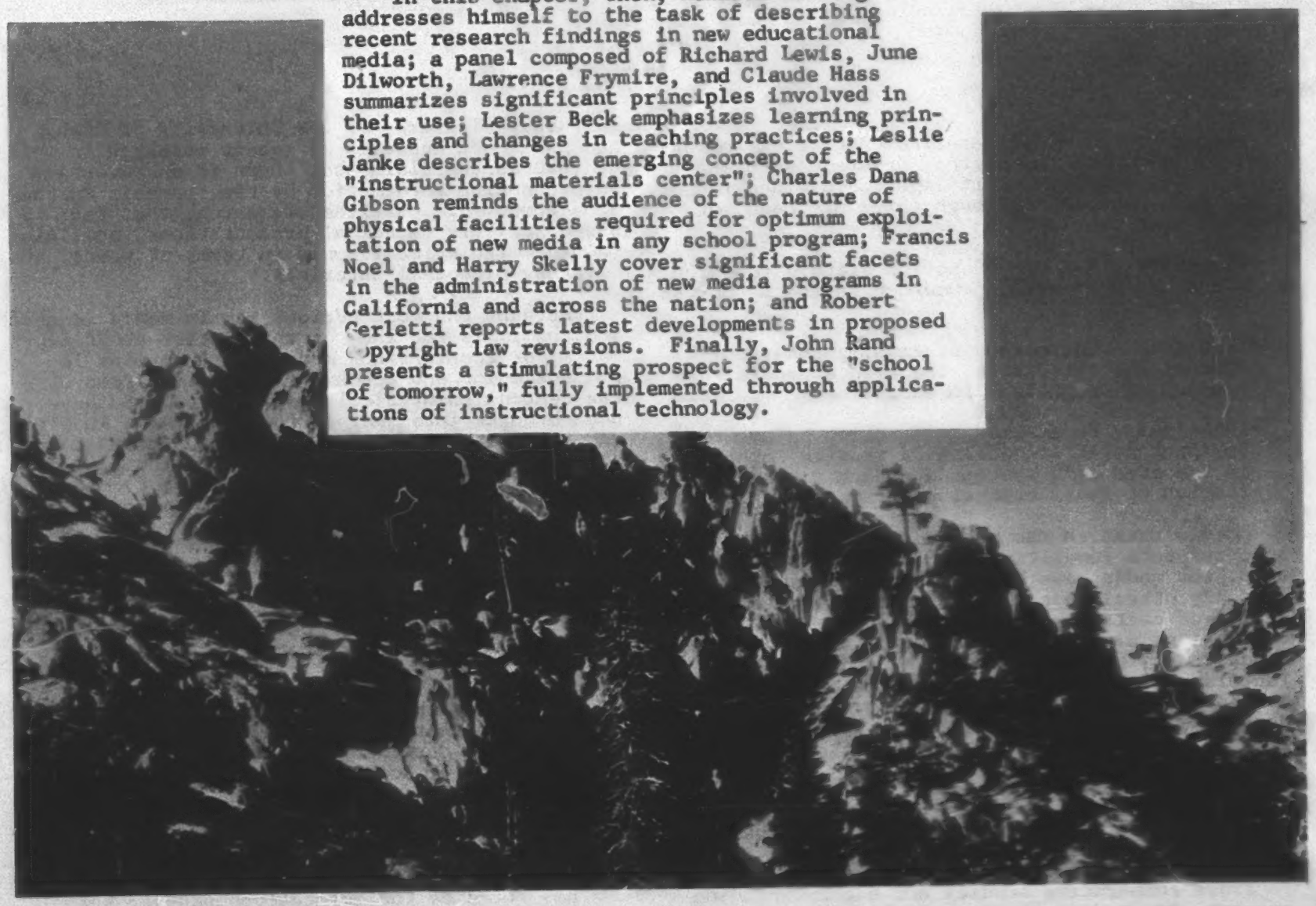
- Articulation as a significant trend is all-inclusive and the one on which all others build. Within the last three years California school districts, area groups, and counties have been concerned with the preparation of an articulated program in foreign language to assure consistency of materials and methods for consistent quality in the program from the elementary grades through high school and junior college. Committees, consisting vertically of persons from every chronological school level and bi-partisanly of administrators and teachers, have produced guides outlining the aims, objectives, level content in structures, materials and equipment, procedures for evaluation, orientation and in-service training recommendations, and even sections on principles and procedures for the role of the non-English-speaking child (principally the Spanish-speaking child) in the California classroom.

Chapter 4

New Media in Today's Educational Programs

One especially helpful aspect of the Tahoe Workshop was the decision to interlard throughout the program presentations concerning recent curriculum trends (treated here in Chapter III preceding) with interpretive presentations by new media specialists. Each such statement provided needed perspective to the broad sweep of curricular changes and pointed directly to resulting responsibilities for educational media personnel.

In this chapter, then, Kenneth Norberg addresses himself to the task of describing recent research findings in new educational media; a panel composed of Richard Lewis, June Dilworth, Lawrence Frymire, and Claude Hass summarizes significant principles involved in their use; Lester Beck emphasizes learning principles and changes in teaching practices; Leslie Janke describes the emerging concept of the "instructional materials center"; Charles Dana Gibson reminds the audience of the nature of physical facilities required for optimum exploitation of new media in any school program; Francis Noel and Harry Skelly cover significant facets in the administration of new media programs in California and across the nation; and Robert Gerletti reports latest developments in proposed copyright law revisions. Finally, John Rand presents a stimulating prospect for the "school of tomorrow," fully implemented through applications of instructional technology.



What Does Media Research Tell Us?

Kenneth Norberg

Kenneth Norberg is Professor of Education and Coordinator of Audio-Visual Services, Sacramento State College. His present professional responsibilities are college teaching and audio-visual program administration.

Audio-visual media research dates from approximately 1918. If the history of its development were to be categorized, it might be divided roughly into three periods, although there has been, of course, much overlapping:

- 1918-1950 - The era of motion picture research, which has been well documented in the Hoban-van Ormer report.
- 1950-1960 - The period of growing interest in educational television, and also a general expansion of technology in education.
- 1960-1965 - Programmed instruction became the dominant motif, as well as a growing interest in the idea of a systems approach to the organization of instructional programs.

Media research has been very abundant, and in some respects repetitive. In the field of education, the media have been researched possibly more than any other subject. It is known with a high degree of certainty that people learn from films, television, programmed instruction and many other kinds of audio-visual materials, and that such factors as form of presentation, repetition, participation, attention-directing devices, rate of development, camera angle in film and TV, and various methods of utilization affect the amount of learning.

Comparative studies have revealed that people often learn as much or more from audio-visual media as from conventional presentations. In recent years, however, there has been a decline in gross comparative studies and a corresponding increase in studies of more precise research objectives, such as the variables within the presentation of programs by a given medium.

Robert Travers, of the University of Utah, has published accounts of recent research in which he refutes the claim that there is an advantage in presenting information by two channels at the same time. His published research, thus far, is based strictly on verbal presentations, combining "audio" with "visual" only in terms of words, and omitting pictorial materials.

Perhaps the most serious gap in media research and theory is the lack of information about pictorial or iconic signs and their functions in communication and teaching. Recently, some of the central theoretical problems involved have been brought into sharper focus by James Knowlton, and in research reported by Jerome Bruner and others. Randall Harrison has initiated a promising line of research in the function of contextual cues--particularly, the effects of various elements in facial expressions. These recent theoretical and experimental developments lend at least preliminary support to the following hypotheses:

- Pictorial signs are "post-lingual" and their functions in some respects are language-dependent.
- Linguistic theory and studies help to distinguish characteristic features of language, which, by contrast, help to understand the functions of iconic signs. For instance, words are discrete, whereas iconic signs have the property of continuity.
- Pictures may be more effective than words when (1) dramatic impact is desired, (2) the learner has not made the connections between verbal symbols and their referents, or (3) words do not exist for the referent object or an established conceptual referent does not yet exist.

- Manipulative and perceptual experiences are effective in introducing advanced mathematical ideas to young learners.

Some conclusions and implications of the research in new media over the last few years are:

- One of the great unexplored regions in media research is the problem of the nature and function of iconic signs. Until this problem is dealt with more adequately on both theoretical and experimental levels, methods based largely on intuition and practical experience will have to be followed.
- It appears that learning that involves problem solving and/or creative thinking proceeds from the manipulative level through the perceptual to the symbolic, and that attempts to arrive at a symbolic operation too soon, without adequate foundation, may result in confusion rather than learning.
- Evidence shows that the need for manipulative experience and imagery holds at all age levels where the learner is dealing with strange or totally new materials.
- Some of the unknown and unique advantages of new media still remain to be explored.

Utilization of Media--New and Old

Lawrence P. Frymire, June Dilworth, Richard B. Lewis, Claude W. Hass

Lawrence P. Frymire is Educational Television Coordinator for the State of California. His present professional responsibilities include developing an educational television master plan for the state.

June Dilworth is Director of School Broadcasting. Her present professional responsibilities are to coordinate the planning, development and evaluation of classroom television programs produced at station KCTS, University of Washington.

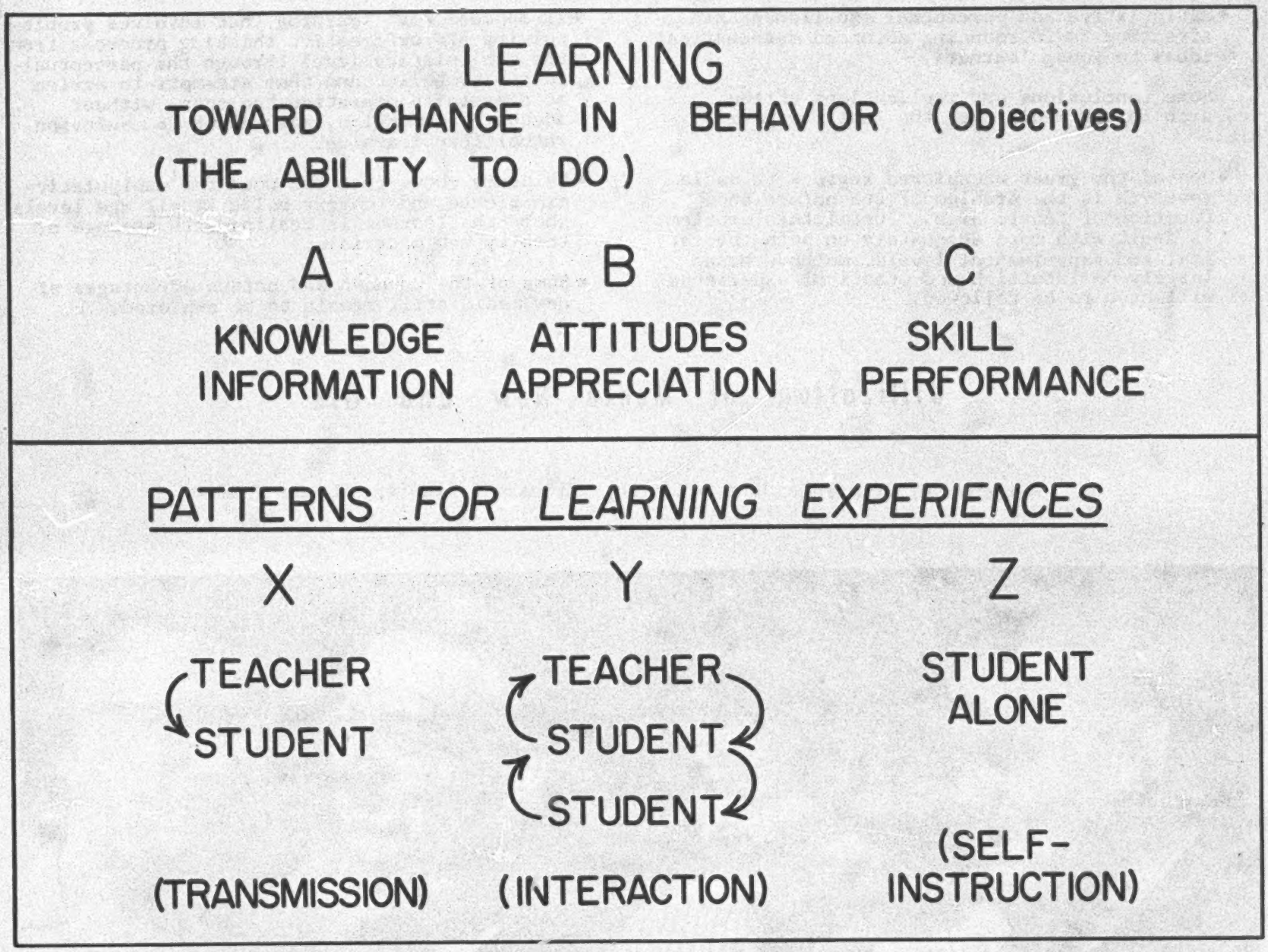
Richard B. Lewis is Head of the Division of Audio-Visual Services, San Jose State College, San Jose, California.

Claude W. Hass is Consultant in Audio-Visual Education for the California State Department of Education.

Introduction--Richard B. Lewis

Traditionally, many teachers have looked upon knowledge as something to be transmitted by the teacher to the student; we need now to view teaching and learning in other ways, keeping in mind the variety of objectives, processes, and materials required in our programs. We are primarily concerned about appropriate changes in student behavior, that is, the specific objectives for them which we have in mind.

Basic to these concerns, as illustrated in the schematic presentation below, are the "ABC's" of content and achievement that we identify as the broad objectives of education: (A) the acquisition and refinement of knowledge and information; (B) the development of attitudes and appreciations; and (C) the achievement of competence in specific skills.



Above the center line are symbolized the content and objectives of education, and below are the activities of teachers and learners. In each relationship between teacher and student, between student and content, different learnings may take place at the same time, and the ABC-XYZ arrangement is one of complex and varying emphases. Both teacher and student have specific roles in each situation for each objective, and for each situation there are materials, equipment, and environmental conditions that can most effectively facilitate learning.

There are changing roles ahead for teachers, administrators, librarians and audio-visual coordinators as new ways of using the tools of instruction are developed. Combinations of media must be explored, as well as the potential of present and emerging facilities. The expanded uses of the camera, the whole world of audio and audio devices, the pushbutton world of the electronics laboratories, and programmed instruction are a few of the tools needing extensive exploration.

The learning experiences of thinking, listening, reading, and writing are dependent upon the resources for these experiences. Equipment, materials, and facilities to permit effective use of these resources require a support system of people and more resources to back up the program or the program will fail.

We shall explore two of the new media resources for large or medium size groups and for independent study--television and programmed learning--in terms of changing needs of our schools for improving instruction with media.

Programmed Instruction--Claude W. Hass

The focus on the individual rather than on the masses is increasingly apparent. The book has long been an individual teaching device, but now there are a tremendous number of innovations. The filmstrip viewer, for instance, is gaining increasing use as a teaching device, and an expanding number of 35mm films for individual viewing are being produced. There is also an increasing use of the 8mm motion picture in the form of single concept films, and of the tape recorder with earphones for individual listening.

Programmed materials, with their emphasis on individual learning, are being used extensively in Americanization adult education classes. They are ideal teaching tools in these classes because of the varying levels of ability and differences in cultural backgrounds among students, and have made it possible for instructors to adapt material to the needs of their students.

A questionnaire sent to every school administrator in California in 1961 showed a vast lack of knowledge concerning programmed instruction. A repeat questionnaire the following year, however, drew nearly double the number of responses, and the 1963 results showed another 100 per cent increase in bona fide uses of programmed instruction.

Interest in programmed instruction in California is continuing to increase. There are many studies under way, the largest of which concerns the teaching of foreign language by programmed instruction. Thirty-two classes are using the TEMAC material along with tape recorders and other devices. They will be compared with classes using television and a third group using a language-qualified teacher with access to all of the best materials. Much is expected from this study.

The growing use of programmed materials and the growing interest in the individual learner have serious implications for every one of the conference discussion groups. Special attention should be paid to this topic by those groups concerned with space design, organization and administration of the instructional program, and changing teaching practices.

Trends in Television--June Dilworth

Television is a dynamic teaching-learning resource which is being used effectively at all levels of education.

The methods and systems used in higher education vary widely from school to school depending upon the needs of each particular college or university. One of the striking similarities among institutions of higher learning making extensive use of ITV is that they turned to television as a means of solving problems of increasing enrollment, unavailability of faculty in critical areas and budgetary problems on their own campuses.

The examples which follow are some of the ways in which educators in the state of Washington think instructional television can and should be used:

The head of the art department in a senior high school believes that instruction can be improved through cooperative teaching when the particular skills of each teacher are shared.

A junior high school science teacher is convinced that CCTV can be used as an effective learning device which can allow for flexible scheduling in all curriculum areas and can reach more students in less time.

Intermediate grade teachers think that television can be an aid to the classroom by bringing good education to the students and that it can serve as a reinforcement to the classroom teacher.

A primary teacher believes that television instruction is invaluable and that teachers welcome any aid that will help children to learn.

A school district instructional materials director is persuaded that ITV is a part of the whole instructional program, that administrative cooperation is of extreme importance, and that the total value of the learning experience rests upon the classroom teacher's use of ITV.

A librarian believes that more consideration should be given to television as a means of teaching library skills, library orientation and the library's place in the total school program.

A school district superintendent is convinced that ITV has earned its place in today's classrooms and that it is the responsibility of school administrators to see that it is available and used.

All of these examples denote trends in the uses of instructional television in our schools by educators who are actually using it in the classroom as an instructional resource, by those who are developing plans for future uses, and by those developing plans for further utilization.

The Challenges of Television--Lawrence P. Frymire

The challenge is before us to review the utilization of media and plan for its further use in our educational processes, both of which will require studied flexibility in both our training for and utilization of the media.

In California at the present time there are seven operating ETV stations, and five more in various planning stages. There are literally dozens of closed circuit installations around the state, and two 2,500 megacycle systems under construction. At least another twelve school districts are interested in installation of these systems for either whole or partial system use. Data show that approximately 1,325,000 California students will be using television as a regular part of their curriculum training this fall.

State funds have been allocated to improve present uses and stimulate further uses of instructional television. The Farr-Quimby Act of 1965 provides $800,000 for production of and wider use of ITV materials. These funds, combined with recent federal legislation, open opportunities in the field of ITV and present great challenges to us.

Ramifications of a California study now under way offer one of the greatest challenges we have before us in utilization of television. This study will determine the transmission and interconnecting systems required to provide a broadcast television signal consistent in quality with the highest state of the art, to every community in the state with a population of 1,000 or more. The study will describe options available to the state with regard to ETV program distribution on a statewide basis, recommend transmitter sites and types of equipment required to obtain this coverage, furnish data on personnel needs, maintenance and operating costs, and will be part of a master plan for ETV which is now under development. The study should propose a system which will satisfy intrastate needs as well as satisfactory regional and/or national interconnection, and be flexible enough to provide for regional sub-network capability within the state of California. Existing state-owned sites and equipment will be incorporated into the proposed design.

These plans challenge us to wise use and development of this proposed statewide system of instructional broadcasting, completion of which is anticipated within the next three years. There is more permissive and enthusiastic state government support for educational media than ever before, and this support is growing. We need to plan for the use of this type of system, and to do it within the next year or so. We must plan for changes, and accommodate these changes in our educational process.

Summary--Richard B. Lewis

A vast variety of resources is available to help us execute our long-range educational objectives through processes in which resources are the key to success.

The support of federal and state funds presents great challenges. We must ask not what is it that we, as specialists in media, want to do, but rather what it is that the people through education want to do. We must act to help teachers recognize what it is they need to do and what they need to do it. For education is, and always has been, achieved primarily by the teacher and the student.

Studies concerned with results obtained by utilization of various media have often shown small differences in student achievement; this fact in itself may provide opportunities for teachers to tailor methods to individual student needs as well as to look at another long neglected area--cost accounting in the sense of unit cost of educating each individual. We have a major responsibility in terms of results, and an equal responsibility to see that educational funds are wisely spent.

The Chaplain of the 49th Congress spoke a short and most appropriate prayer which might be taken as a guide to the discussions of this conference: "Help us to know what we must do. But help us most when we find out what we must do and don't want to do it."

Learning Principles and Changing Teaching Practices

Lester Beck

Lester Beck, educational psychologist, is well-known for his research in producing a number of outstanding educational films, including Human Growth, Human Beginnings, Unconscious Motivation, and Squeak, the Squirrel.

A review of evidence relative to rapid early learning, without reinforcement, is beginning to show its significance in relation to later learning. The learning theorists have been inclined to believe that in order to learn it is necessary to make some kind of response. Recent research and new information in the field of learning, however, is beginning to show that this is not necessarily true. As a result, teaching practices are changing at all levels--for the pre-school years, in the grades, and at the college level.

The new series of education bills in Congress has removed our last excuse for inaction in exploring and testing the possibilities opening before us. Lack of money is no longer a satisfactory rationalization. We need now to search through these bills and formulate our strategies as to how these funds can best be applied.

Early Learning Theory

Konrad Lorenz, Director of the Max Planck Institute of Comparative Behavior in Germany, is studying through ducks and geese the kinds of learning that go on very early in life and the impact these learnings have upon later behavior. He spent the critical first twenty-four hours of their lives with these birds, and as a result they became imprinted to him, come at his rough simulation of the species call, and have accepted him more or less as a member of the species. There was no learning reinforcement at any time; he was simply in their presence at a critical time of their development. He is also interested in the period of the lives of these birds when they recognize the opposite sex, and through imprinting, has trained some of them to be homosexual.

His work demonstrates a kind of learning that goes on at certain periods without reinforcement, and produces behavior profound in its significance. The fact that it occurs at all should give us pause, as well as added impetus, to look for comparable examples in the field of human behavior.

Little research has been done on early human learning without reinforcement. One carefully controlled experiment, however, carried out by Professor Burtt, a genetic psychologist at Ohio State University and reported in 1932, 1937, and 1941, did show remarkable results through modifying early environment and testing its effect on later learning. He read selected passages in Greek to his son for a fifteen-minute period daily from the time the child was eighteen months old until he was three. Five years later, at the age of eight and a half, the child demonstrated a 30 per cent saving in learning up to one errorless repetition, selections from the material read to him in his babyhood over material he had not heard. At the age of fourteen there was still a 10 per cent saving, and at the age of eighteen an infinitesimal amount. Such an example of saving in learning illustrates well the relationship of early to later learning and points up the need to provide environments for young children which will facilitate later learning.

Benjamin Bloom, in his Stability and Change in Human Characteristics, says that by the time a child is four years old he has attained one half of his adult level of intelligence, and by the time he is six he has attained two-thirds of it. The school, therefore, deals only with the final third of a child's intelligence level.

Research has indicated that at least half of the factors of reading success in the first grade are related to environmental background. Neglect of early environment, therefore, plays a large part in the problems children have in learning to read. Another factor relating to reading success at this age is teacher variability, which complicates the problem and increases heterogeneity among youngsters entering the second grade.

For these reasons, as well as others, a strong kindergarten program becomes important in relation to later learning success, although many areas in the United States do not have such programs.

New Approaches to Education

Dade County, Florida, has instituted a program to reach pre-school children at home through the use of broadcast television in an attempt to give small children some community of background. The programs are broadcast daily for forty-five minutes, with a fifteen-minute, basic program repeated in a slightly more sophisticated manner, followed by a story hour. Children are used as learning models on the program. Copies of the program are distributed to viewing centers in the area, staffed by junior college students, to which parents may bring their children.

In Memphis, Tennessee, the broadcast television program for pre-school children is oriented toward a different philosophy--that of giving both Negro and white children the kind of background, both verbally and experientially, to help them in school. The emphasis is on thought-stretching activities rather than diluting the material to the level of pre-school children.

There are many other programs around the country designed primarily to stimulate pre-school youngsters. Studies in Denver have shown that children exposed to these programs are far ahead of their counterparts when they enter school and that the effect persists on up through the grades.

The Amphitheater School District in Tucson, Arizona, contains buildings constructed without inner walls, and uses ungraded and unscheduled grade school activities. Team teaching across subject matter areas, such as art and science, has infused the dry facts of science with the warm facts of art for many youngsters. A good deal of attention is given to counseling by all adults, including the custodian, and a child may approach any adult available. In the course of their development, children are building bridges from the unconscious to the conscious, which may make them more creative as they grow up.

One of the changes in teaching practices just over the horizon is a development of climates as well as techniques so that children will be encouraged to draw upon impulses, the source of which they may not be fully aware.

Dr. Postlethwait of Purdue University has established new approaches to teaching botany that have resulted in approximately 30 per cent of his students receiving grades of A, rather than the five per cent who received them four years ago. He has established a botany laboratory, equipped with study carrels and audio-visual equipment, which is open from 7:30 a.m. until 10 p.m. five days a week. Students are not scheduled to this lab, but use it as they choose. They log themselves in by placing a card with their names and pictures on a special rack which enables Dr. Postlethwait to know any time he enters the laboratory which students are there. He addresses them by first names and discusses their learning problems with them individually. Oral quizzes are given, and he has discovered that many of his students are capable of expounding on botanical subjects in this face-to-face context as well as many professors of the subject. He lectures once a week and invites foremost botanists to address the group.

Dr. Postlethwait has created a warm working relationship with all of his 600 students and, in effect, gives individual instruction to each one. This innovation in college teaching is an outstanding example of an integrated experience approach to learning.

The Emerging Concept of the Instructional Materials Center

Leslie H. Janke

Leslie H. Janke is Chairman, Department of Librarianship, at San Jose State College.

There is today no job of greater importance to progress in every sector of society than that of managing the availability and flow of knowledge through all media. Almost daily the mass communication media speak of our overabundance and the problems that come along with it. Earlier efforts of such people as Merganthaler, Edison, Eastman, and DeForest are making a tremendous impact on present-day teachers and students, who are being engulfed in the tremendous tidal wave of communication material.

These developments have prompted American educators to take a new look at the long-established traditional curriculum patterns. No longer is the curriculum determined solely by the textbook. Pioneering educators who have adopted the concept that the carrier of knowledge best adapted to solve the problem is the one to be used, regardless of format, are bringing change in all areas of school curriculum. Through the work of school librarians and audio-visualists who understand this concept, progress has been made in changing the function of the traditional school library and audio-visual program.

Progress has been slow--held back by the same variety of factors that have kept education generally from moving ahead at the same pace as business and industry, including lack of change in the philosophy that shapes the school, teaching methods that require nothing more than textbooks, poor physical settings, and lack of conviction that content can be provided in many forms. Reluctance on the part of librarians to accept such new items as films, tapes, and recordings with the same enthusiasm as books, or vice-versa in audio-visual, results primarily from a traditional type of librarianship education that tended to stress that "a picture is not worth a thousand words," and with audio-visual professional schools that regarded the printed page as an obsolete communication device.

Before real leadership can be expected from the school librarian or the audio-visual specialist in making the school's resource center a place which includes all carriers of knowledge, a new dynamic concept needs to be instilled into the background of every trainee entering the field of communications. A new kind of professional training will be required to provide leadership in design, implementation, and evaluation of programs of education which make the fullest use of new media.

Today's concentration on the academic, restructuring of curriculum plans, and new teaching techniques pose a challenge to the communications specialist. He must now be knowledgeable in academic areas and must also provide resource material needed to back up the enriched curriculum. School librarians must be trained to realize the need for the cross-media approach, and to reassess the quantity and quality of the traditional book resources. In today's schools the large centralized library often fails to meet the real need of the student; study carrels supplied with all media, or study centers on some form of subject grouping may be the more satisfactory way to provide the materials in the form and at the time needed.

The complexity of twentieth-century technology requires that preparations for becoming a media specialist must provide:

- A background of information in the utilization of all the communication types;

- Greater knowledge of the academic fields in order to encourage and support depth study on the part of students; and

- Guidelines for modifying the role of the individual and enable him to adjust to the changes taking place in the administration, organization, and physical facilities of the public schools.

Although the majority of school librarians are still working primarily with the traditional book materials, strides have been made to expand the resources at the disposal of the librarian to include all the media of communication. Much has been said and written concerning the extent the librarian should be involved in the administration of all the media in a school, but the complete "unity of materials" concept has not yet been reached. The metamorphosis of most book-oriented libraries into "all media" libraries will not come until librarians trained as media specialists, or audio-visual specialists with knowledge of printed materials, are available to direct the change.

Probably the greatest impetus in the establishing of school instructional materials centers came in 1960 with the publication of the "Standards for School Library Programs" by the American Association of School Librarians. The new standards were based on the premise that the school library should serve as a center for instructional materials and listed all of the media of communication as vital instruments in the teaching and learning process.

The AASL document has influenced the development of the instructional materials concept in other ways: (1) by prompting a number of state library associations, including California, to revise their state school library standards, and (2) by prompting the publication of a stream of literature emphasizing the instructional materials approach. The development of instructional materials programs has been handicapped by the lack of properly trained personnel as well as by the inadequacy of proper school library facilities.

Guidelines for Training Qualified Educational Media Personnel

Librarians, or media specialists, need to function at the levels of (1) the single school, (2) the small school district, (3) the large school district or county level, (4) college and university level, and (5) in state departments of education. The guidelines which follow are oriented toward the media responsibilities in the single school or in a school district.

- Liberal arts background. Media specialists need a basic education founded on a baccalaureate program of strong liberal arts preparation. Depth in a variety of academic subject fields is perhaps most essential at the single school level. The consistent stand of the accrediting agencies of the American Library Association is that a minimum of professional librarianship work be taken at the undergraduate level since it is essential that the first four-year college career be devoted to the academic disciplines.

- Foreign languages. Although the need for background in foreign languages has always been recognized in librarianship education programs, the language requirement has often not been stressed for those preparing to serve in the public schools. The school media specialist needs to be conversant with modern foreign languages if he is to serve his clientele with the needed materials of learning, which, in the area of language, include all the media of communication.

- Teacher education. It is vitally important that the need for some training in the field of teaching not be overlooked. The person working with media must know what is being done in the classroom if he is to supply the materials needed by students without conflict with the foundations laid by the classroom teacher. He needs some knowledge of the philosophical and psychological reasons of why and how children learn, and how they develop reading, viewing, and listening habits.

- Curriculum. A basic understanding of curriculum organization is necessary. Anticipation of teacher and student needs can only be achieved if the media specialist knows how the curriculum has been developed, and understands its ultimate goals.

- Measurement. The media specialist's participation in the assessment of pupil performance is equally as important as that of the classroom teacher and other members of the school staff. All professional school personnel must be familiar with the techniques and instruments of measurement.

- Internship. To make these educational principles meaningful some opportunity for in-service training is essential. The ideal program would be one in which the internship followed immediately upon completion of the undergraduate degree and before the start of the fifth-year professional training sequence. This plan would delay entry into the fifth-year program, however, and further extend the eventual entry of the individual into his full-time professional status.

- Communication arts. At some phase of the undergraduate program the student should be introduced to the widespread implications of mass communications. Insight into this field prior to the internship or field study situation in a public school would provide the student with a basis for evaluating the role of communication media in the school program, although greater depth study in the theory of communication during the fifth- and sixth-year programs is necessary.

In training the specialist to service the vast quantity of educational materials now available, several basic areas must be included in the fifth-year professional education sequence:

- Administration. To enable media specialists to perform the services necessary to achieve maximum value from media materials, the following basic administrative principles must be included in the fifth year: (1) budget and school financing practices at all levels, (2) personnel relationships, (3) operational procedures (scheduling of equipment, systems for handling materials, value of centralization versus decentralization within the school or system), and (4) methods of working with faculty and staff, such as making recommendations for improving instruction through appropriate applications of educational media or to improve the learning climate, providing expert assistance in evaluation of proper media to achieve given objectives, or enriching the school or district collection with outside resources as necessary.

- Selection. Maintaining qualitative standards for selection of materials is essential in any instructional materials center. Proper utilization depends partially upon the quantity of materials available, but more significant is the quality of the media, both in physical format and subject content, as well as in relationship to the curriculum being served.

- Reference. The word "reference" encompasses all of the ways in which the materialist utilizes the items in the collection. Efficient reference service comes when the librarian is able to place the proper material in the hands of the questioner without delay. It is in reference service that computers and other forms of documentation devices will be helpful. In the immediate future it is likely that most school systems will have machine operations of some type.

- Technical processes. Organization of materials becomes more essential as the materials collection grows in size and scope. Adaptation of the Dewey, Library of Congress, and other systems needs to be taught. Teaching the skills of cataloging needs to be continued, and fortunately the new technology has made it possible to prepare indexes to instructional materials in much more efficient ways. The use of teaching machines and properly prepared programmed materials should also be emphasized.

- Production of materials. The media specialist must be well founded in the skills required for proper selection and utilization of all varieties of instructional materials. It is often necessary to supply the teacher or student with materials to satisfy a need not covered by ready-made items.

- Communication theory. The fifth-year program should include further background in communication theory, giving consideration to (1) development of communications systems in society, including both an historical overview of their development and a comparative study of communication systems in different societies, (2) relationship of communications systems to our social and educational processes, (3) contributions of communication processes to knowledge, teaching and learning, and (4) influences on the communication system by the controls and structural organization of the classroom, the curriculum, and the over-all educational aims and goals of the school program.

Administrative Problems

Francis W. Noel, Harry J. Skelly

Francis W. Noel is Director of the SAVES Summary Project at the Sacramento State College Foundation. His present professional responsibilities are concerned with research in audio-visual education administration.

Harry J. Skelly is Chief, Bureau of Audio-Visual and School Library Education, California State Department of Education.

SAVES Project - Francis W. Noel

The States Audio-Visual Education study (SAVES Project) was undertaken in 1961 by the University of Southern California, under an NDEA contract, at the request of the U.S. Office of Education. The project sought to determine the present regulatory, leadership, and operational functions of state departments of education in each of the 50 states insofar as audio-visual education and/or new educational media are concerned. The term "NEM/AV" is an abbreviation for "new educational media and/or audio-visual" activities.

Questionnaires returned from each state were analyzed and personnel in each state responsible for NEM/AV activities were then interviewed by members of the SAVES Project staff. Major findings typical of the types of activities performed by new media personnel in state departments of education included in the 1300-page report[1] were:

- Assisting local schools in new media matters pertaining to curriculum revision.
- Preparing utilization guides, study resource units, bibliographic materials, and similar publications.
- Holding conferences and workshops for professional and lay personnel to provide information, stimulation, and guidelines for use of new media.
- Developing standards for new media availabilities and utilization as part of over-all accreditation procedures.
- Developing and enforcing teacher certification standards involving knowledges and skills in utilizing new media and equipment.
- Developing and publishing building and facilities standards as related to new media installations.
- Conducting research studies and surveys regarding uses and contributions of new media to the school instructional program.
- Producing various instructional materials for use by schools and staff members of state departments of education.
- Distributing new media on short-term loan bases to schools or within the state department of education only.
- Supervising state-wide programs of educational television.

Patterns shown in the study, common to California, were: (1) some 12 per cent of the states encouraged leadership activities, (2) 88 per cent encouraged local and regional distribution centers of new media, and (3) consensus that responsibility for educational television should be shared by the state department of education with other groups within the state. Needs and developments of the states, including California, centered on: (1) well-trained NEM/AV personnel, (2) more training for NEM/AV leaders, (3) better financial support, (4) re-examination of curriculum, methodology, and design, (5) exploration and development of ETV, and others.

[1] As summarized in Administering Educational Media by James W. Brown and Kenneth Norberg, McGraw-Hill Book Company, 1965, pp. 23-24.

The study also sought to define the nature of and conditions under which outstanding NEM/AV programs were developing. In general, states with strong departments of education, good leadership, an administrative unit responsible for new media activities, and who were seeking to integrate and coordinate their work with the school curriculum, were judged to be practicing and developing desirable patterns and programs in the field.

The SAVES study is currently being condensed to publishable size and up-dated on a limited basis under an NDEA contract between the U.S. Office of Education and the Sacramento State College Foundation.

Principles for Media Uses

It has been emphasized throughout this conference that our materials, techniques, methods--indeed, the whole program--must be directed toward improving instruction. Guiding principles of a consistent character in our field which apply to new developments seem to me to be as follows:

- We must seek to get materials, equipment, and service as close as possible to the point of use.
- The mechanics of use of these materials must be easy, simple, and unobtrusive.
- Materials must be accessible in terms of time, distance, and quantity.
- Materials must be available to meet curricular needs and used skillfully in terms of good instructional practices.
- As use of materials increases and cost per unit decreases, continuous decentralization is essential.

An example of continuous decentralization is the pattern of development in California, with local media centers in 54 counties, 119 school districts, and 46 junior colleges.

Growth in California - Harry J. Skelly

Twenty-five years ago we used the verbalisms of Hoban, Hoban, and Zisman to sell the need for audio-visual materials. Verbalism was our strongest point of argument meaningful to the lay public and educators at that time, and we used it well! Today we have more data as a result of research and experience on which to base claims, but they are more complicated and difficult to sell. Nonetheless, a good job has been done in California in selling the program over the years, and there are facts to prove it.

The annual statement of the Bureau of Audio-Visual and School Library Education issued last spring included the following figures and facts:

- Although the total number of audio-visual libraries in California dropped last year due mainly to unification of school districts (from 265 to 235), everything else related to these services increased.
- The number of professional audio-visual personnel increased from 523 to 543.

- Budgeted increases for audio-visual services over the preceding year, at the county level, rose from $4,727,000 to $4,946,000; at the city level from $5,500,000 to $5,700,000; funds under NDEA rose from $2,300,000 to $4,000,000, to give a 1964-65 budget in the state for educational media of roughly $14,000,000.

Other developments of major interest affecting audio-visual education in California are:

- The tremendous increase in uses of and stations for instructional television, with closed circuit TV reaching almost 17,000 and open circuit TV 987,000 students.

- Appointment of the Public School Instructional Television Committee by the State Superintendent of Schools to advise on matters relative to ITV. Currently it is attempting to develop rules and regulations to govern the uses of the $800,000 for instructional television made available on a matching basis under provisions of the Farr-Quimby Act.

- Appointment of an Educational Television Coordinator for California by Governor Brown. Dr. Lawrence Frymire's office has been established in the Department of General Resources of the State Department of Finance.

Some of the many problems currently facing California in its development and uses of educational media include:

- Implementing the Elementary and Secondary Education Act.

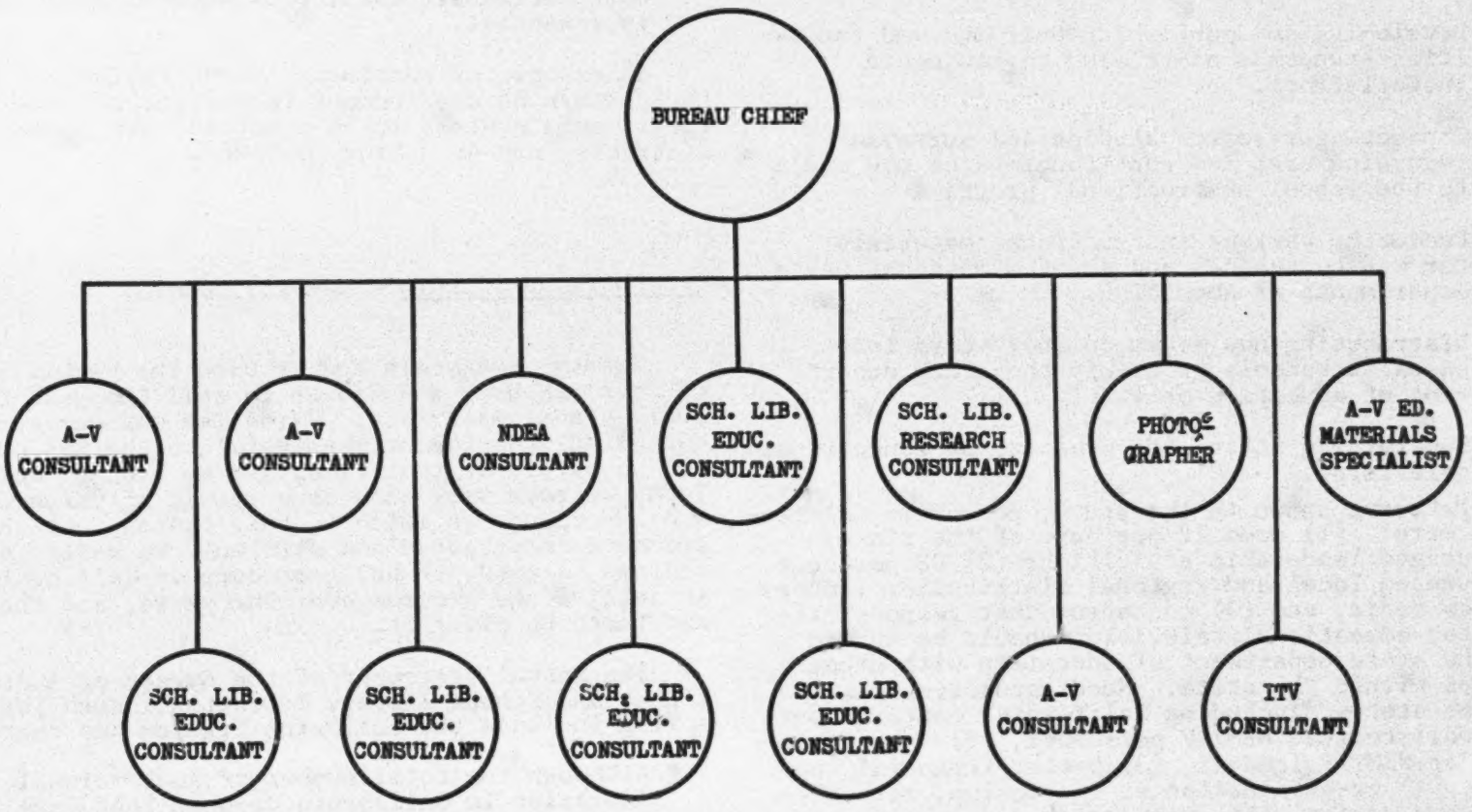
- Changing and reviewing the credentialing structure to assure more proficient training for audio-visual directors--possibly an audio-visual or new media administrative credential.

- Developing standards, both quantitative and qualitative, relative to materials, equipment and services of an instructional materials nature.

Personnel in the Bureau of Audio-Visual and School Library Education see certain changes necessary to staff the Bureau adequately to carry out proposals inherent in the new federal legislation.

The present staff of the Bureau is represented by the top portion of the diagram. The bottom line represents the new personnel that will be added during the next year in order to meet the additional responsibilities placed on the Bureau through the provisions of ESEA and the Farr-Quimby Bill on instructional television.

BUREAU OF AUDIO-VISUAL AND SCHOOL LIBRARY EDUCATION



Under Titles I, II, and V, the Bureau is considering the addition of the following personnel:

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- Title I: Assistant chief in audio-visual education, two consultants in audio-visual education (one concerned chiefly with television), and two consultants in library education.
- Title II: An assistant chief librarian, eight consultants in state library education, and three consultants in innovations of audio-visual education and television.
- Title V: Two consultants in audio-visual education, two in library education, a photo-technician, and an audio-visual education materials specialist.

New Copyright Laws

Robert Gerletti

Robert Gerletti is Director, Division of Audio-Visual Education for the Los Angeles County Superintendent of Schools. His present professional responsibilities are administrative.

The Ad Hoc Committee, composed of thirty-four educational institutions and organizations, was formed in 1963 at an exploratory conference called by the National Education Association to review education's stake in the various copyright proposals under consideration.

Since 1909 Congress has steadfastly exempted nonprofit educational uses from the possibility of restriction on the diffusion of knowledge by copyright monopoly. The Ad Hoc Committee urges now in the public interest that this same kind of Congressional protection for education be written into any new copyright law. To accomplish these ends, the Committee proposed four amendments to H.R. 4347, to provide for:

- An educational exemption for limited copying for nonprofit educational purposes.
- A clarification of the "fair use" provision.
- Authorization for discretionary waiver by the court of statutory damages for innocent infringement by teachers.
- A restoration of the present term of copyright, comprising 28 years initial term plus a renewal term of 28 years or of an extended 48 years.

The present law recognizes a special and primary right to nonprofit uses and distinguishes nonprofit from commercial uses of copyrighted material, which reflects a sensitivity to the broad public interest and gives special protection to education. The Ad Hoc Committee is of the opinion that this protection is fundamental to educational uses of materials.

Under the present law there is noted authority for the view that teachers and educational broadcasting have copyright recording rights under the present "for profit" provision and apart from "fair use." The new bill restricts this usage to formal classroom, or related, situations. Education is education whether its medium is TV or print, and the Ad Hoc Committee has recommended a proposed amendment which would enable education to perform its nonprofit public function through educational broadcasting outside of the formal classroom-related situation. Three arguments posed against this proposed amendment are (1) it is, allegedly, a deprivation of property rights, (2) it is, allegedly, unnecessary because "fair use" can take care of education's needs, and (3) it will, allegedly, destroy the publishers of educational materials. It seems apparent, however, that lawyers are not in agreement on whether copyright is a property right, or what constitutes the privacy of the public interest.

The Ad Hoc Committee maintains that "fair use" by itself is not sufficient to meet the needs of education. It points out the confusion that exists as to what is and what is not considered "fair use" under the law. Publishers do not agree among themselves as to what "fair use" means, neither do authors agree with authors. If the experts cannot agree, how can one expect a third grade teacher in a rural community to know whether or not a given use of copyrighted material is legitimate? Under-the-table uses must be eliminated so that ethical teachers will know clearly what it is they may or may not do under the law.

Several proposals have been made for a copyright clearinghouse or statutory licensing system for reference and instructional materials published by members of the American Textbook Publishers Institute. The Ad Hoc Committee has certain philosophical objections to any such clearinghouse proposal:

- It would likely be substituted for "fair use" instead of being imposed as an addition to "fair use."
- It would require continuous monitoring of classrooms to know the extent and nature of the use of materials and to determine the fees to be charged to schools as well as the distribution of the income among the producers of materials used.
- It would unduly restrict practices that would be considered legitimate under the "fair use" section of the law, and hamper the dissemination of materials used throughout the educational community, thus nullifying the renaissance in materials usage which the recent education legislation sought to bring about.

The Ad Hoc Committee also recommends:

- Section 107, Limitations and Exclusive Rights: fair use, be expanded to include a "for profit" limitation to help educators perform their tasks.
- Statutory damages for innocent infringes for bona fide nonprofit educational purposes be reduced to a sum of less than $100.
- Copyright duration be for 28 years plus 28 years or 28 years plus 48 years.

Education has a real stake in the revision of the copyright law. All of us need to sense the urgency inherent in this matter, keep ourselves informed, and be prepared to make our wishes known.

Innovation with Instructional Technology

M. John Rand

M. John Rand is Superintendent of the Temple City Unified School District in California.

The twentieth century has been racked with cataclysmic changes, from the worst wars in the history of mankind to the beginning of social and political upheavals that have not ended; perhaps they have not even begun. The world's people have come to understand the importance of education to our future. Now we must have the courage to burn our ships; we must deny ourselves the pat answers and the great clichés we have too often tended to use in the past.

The idea of "status quo" is really a myth. The education profession's single greatest challenge is to effect systematic change in our schools. To do this will require ingenuity, patience, and faith in the role of the school in our society; it will also require faith in our profession. For only as educational leaders themselves gain new perspectives and better awareness of educational opportunities and challenges can we hope to change teachers and the educational process.

The first challenge of the educational leader is the need to create an educational environment that fosters innovation. Change is encouraged in an atmosphere of freedom and respect; change progresses in direct proportion to each participant's involvement. Staff talents and professional ambitions must be identified and nurtured through research, experimentation, and innovation.

Together, those concerned with education--educators, citizens, specialists, and outside agencies--confront the great challenges of education. Not only must we try to circumvent the great lag between what is known and what is taught, but we must also provide for the multidimensional aspects of motivation, seriousness of learning handicaps, and avenues for different learning styles. How do we tap the talents and abilities of all children in a time when survival may depend upon maximum conservation and utilization of all our resources?

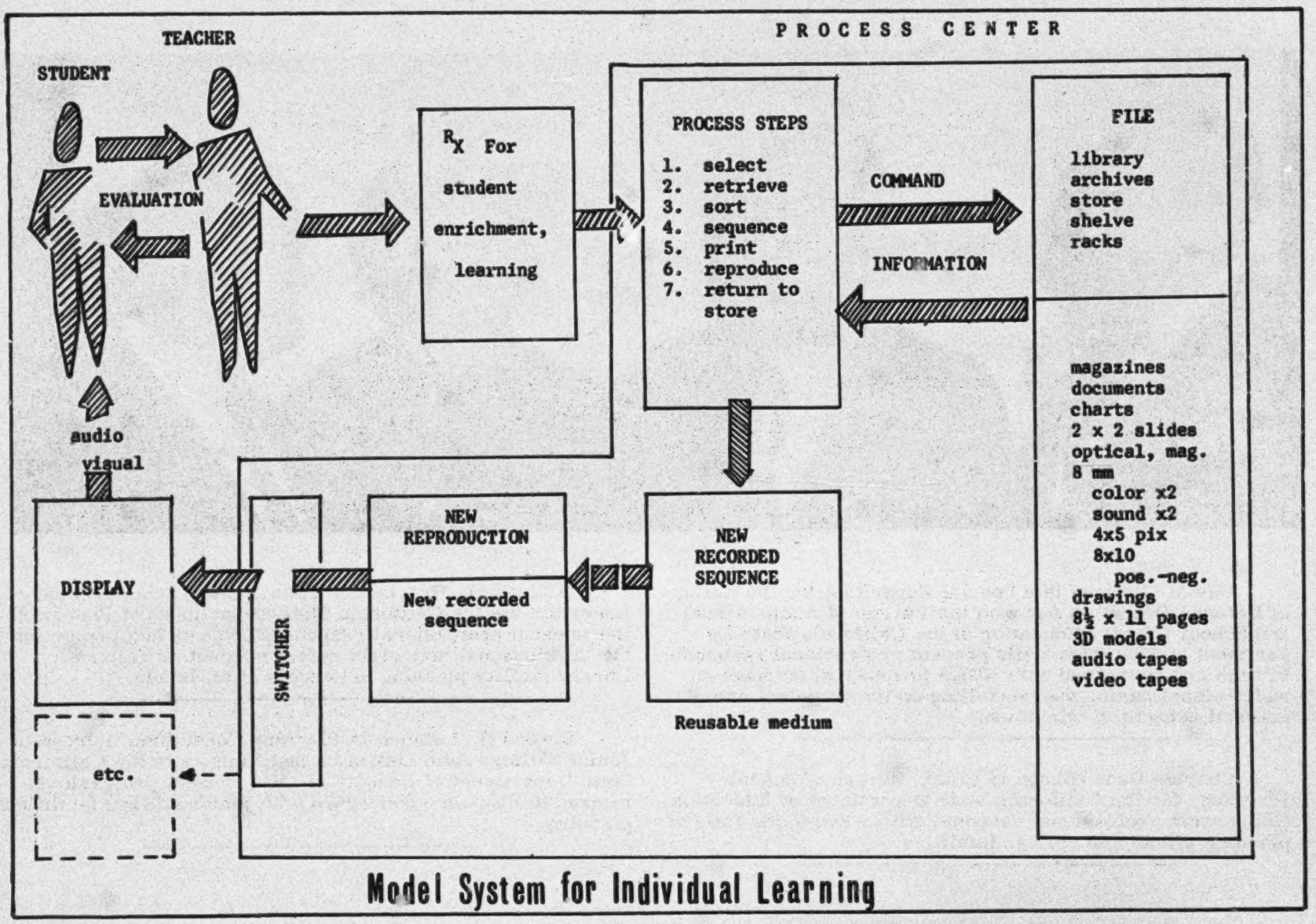
Several ships of the past must be burned and sunk forever. The single textbook approach to teaching, for example, is simply inadequate at the present time. The idea that there can be separate and unrelated departments within our schools also must be abandoned; the piecemeal approach to innovation simply will not work. We must realize that individualization of instruction is directly concerned with guidance, the learning process, staff utilization, instructional goals, community involvement, and various other facets of the educational program.

Innovation - An Example

Innovation with instructional technology in Temple City (California) began with a listing of major problems and concerns. Foremost among them were individual learning rates and the need for increased access to information, enrichment for rapid learners, correction of learning handicaps, extension of teacher knowledge, more efficient utilization of "dead time," motivation for apathetic students, and more efficient utilization of staff talents. The question was asked, "Can a system of hardware be planned that will contribute significantly to the solution of such problems?"

During a two-year period of analysis, explorations were made by the Board and staff, classrooms were observed, and teacher needs were explored. The community itself was sold on the importance of an Instructional Materials Center as the heart of every school. When a system was developed to meet the needs of the School District, certain resources and performances were considered important for inclusion:

- A storage and retrieval system to provide audio-visual resources without teacher concern for the type of resource, but to include 16mm and 8mm films, 2" x 2" projectors, recorded materials, flat pictures, overhead projectors, closed and open circuit TV, AM-FM radio, audio tapes, and video tapes.



Model System for Individual Learning

- Immediate random access to materials in keeping with interest, time, and rate of learning.
- Reasonable cost for the average school district.
- Usability for teachers on a developmental basis.
- Usability for individuals or groups in a class or library center, or by a class or number of classes.

Inherent in the Temple City system are the assumptions that teachers can and will diagnose individual needs and prescribe programs on an individual basis, and that staff specialists will be able to develop materials for particular interest groups.

Challenge for the Future

If we, as educators, are to meet the challenges of our times, we must:

- Specify and define teaching goals and the teaching process more clearly.
- Eliminate generalities, half truths, and inconsistencies in our own philosophies of education.
- Use specialized services and critical analysis to refine our ideas.
- Be more scientific about our profession, while realizing that its actual application has always been and will always be essentially an art.
- Nurture creative ideas wherever found, and open county and state thinking to change and innovation.
- Recognize that there is much we do not know about attitudes, value development, and the thinking process.
- Accept the ultimate fact that we shall seek and question much, but never arrive at the finished product; we shall seek more because we know more. Because we are men, our reach shall always exceed our grasp.

Design and Facilities for the Learning Environment

Guy M. Helmke, Charles Dana Gibson, Mildred M. Brackett, Elwood H. Lehman

Guy M. Helmke is a Special Consultant for the National Defense Education Act with the Bureau of Audio-Visual and School Library Education of the California State Department of Education. His present professional responsibilities are concerned with NDEA projects which have an audio-visual basis, and consulting on the technical and educational aspects of television.

Charles Dana Gibson is Chief, Bureau of School Planning, for the California State Department of Education. His present professional responsibilities are in the field of planning school and college facilities.

Mildred M. Brackett is Consultant in School Library Education for the California State Department of Education. Her present professional responsibilities include promoting the instructional materials center concept as related to library facility planning in schools at all levels.

Elwood H. Lehman is Planning Consultant, Bureau of Junior College Administration and Finance in the California State Department of Education. His present professional responsibilities are concerned with junior college facilities planning.

Charles Dana Gibson

Audio-visual education is now coming of age and will become an increasingly important force in our total educative process chiefly because its strengths are badly needed if we expect to meet successfully the real crises which face us. Media, to be new today, cannot be only a replay of old media set to transistors.

It does, however, seem questionable whether the coming federal funds should be spent in large quantities on equipment and space before definite policies and programs have been set. As has been stressed during this conference, (1) the basic objective of audio-visual programs and processes is to help people to learn effectively, and (2) we must not let the tools of learning obscure what we are trying to do with them.

Educational crises facing us today, for all of which audio-visual education will become increasingly important as a factor, are:

- The changing pattern of population prediction. Educational programs and facilities planned on the basis of carefully worked out land utilization studies to show maximum population have been overwhelmed as results of rezoning, multistory apartments, condominiums, and shifting land values.

- Reorganization of school districts. The unrealistic school district pattern based on elementary districts superimposed on high school districts, which in turn, were superimposed on junior college districts is being corrected by unified school district organization with its possibilities for better coordinated educational programs from kindergarten through twelfth grade.

- Stepped-up discovery. Instructional processes must be reorganized to give school programs a chance to stay within shouting distance of available knowledge.

- Recognition of a new educational dimension. The greatly improved art and science of school facilities planning is beginning to produce educational housing that leads rather than follows program needs. Space enclosure has changed from a program confining element to a program challenging element. The crisis is created by the need of educational programs to catch up with the potentials of educational housing.

- The four-and-one-half day work week. The combination of more off-work hours combined with the spectacular increase in new knowledge presents a formidable crisis in the area of continuing education.

- Money to spend--people to hire. The new federal support money--new programs, new personnel--create great crises for educational administrators. There is still debate and indecision within the various academic disciplines concerning directions of action.

The combination of crises and confusion in education points up the fact that basic objectives and valid processes of audio-visual education must be carefully thought through. Much interdiscipline and intradiscipline communication will be necessary before audio-visual forces are ready to move intelligently toward total educational objectives.

Some basic educational concepts which seem valid and justified as bench marks for evaluation of any phase of the total educational effort are:

- Teaching and learning occur on a one-to-one basis.

- Curriculum will be developed from the inside out rather than from the outside in, and will be deemed valid only if it serves the needs of the individual student.

- Teachers will be trained and retrained on the job.

- School organizational patterns and scheduling practices will revolve about the specific needs of students of various ages.

- Learning areas will be well supplied with newly developed equipment designed to expedite the individual instruction approach to learning.

- The best elements of the present "guidance programs" will be a regularly scheduled activity far down in the elementary school.

- A permanent cure will be found for the phobia for supervision. The current obsession that nothing can be done properly without watching must be overcome.

- Formal school experiences will be extended downward to include two-, three-, and four-year olds.

These concepts could be implemented in a variety of ways in the school plants which will develop within the next few years:

- The school will be located wherever you find it. Educational programs will be taken to those they are to serve by all types of communicative processes. Existing school plants will become part of building complexes serving various community functions.

- General appearance of communities will improve. Adults will have more off-work time, vacations will be spread around the calendar, and school programs will be of a continuous nature for both children and adults.

- School structures in low population density areas will house other needed community services, and their sites will be landscaped and equipped to serve man's formal and informal school-community functions.

- Learning laboratories will replace classrooms per se and will be designed to serve both children and adults, since education will in reality become a continuous process.

- Integrated building designs will recognize that requirements of space amenities differ for youth and adults. Interior building surfaces will be covered with electroluminescent materials to provide required levels of general illumination, and other light sources will be available to individuals to provide the quality and quantity of light needed for comfortable, accurate and fast viewing of a wide variety of visual materials. Light source controls will be electronic.

- Unwanted sounds will be controlled by inaudible sound frequency screens which will permit

the compatible proximity of any degree of sound-producing activities without visual barriers.

- Devices for image projection on a beam of light will be developed that require no space darkening to produce necessary image contrast. These will be multiuse areas and images will be projected at either full or minute scale, as required.

- The present library will disappear in favor of new systems for nearly instantaneous retrieval of knowledge. Nationwide and worldwide mechanical brain centers will answer questions in some recordable form within seconds from the appropriate retrieval center.

- History and geography will be studied on the spot, even as they are created.

Good schools always have met, are now meeting, and will in the future meet the following criteria:

- Individual differences of students are taken into account. Goals are based on the varying needs of each individual.

- Each pupil feels he is important and respected.

- Pupils participate actively rather than listen passively.

- All possible ways of teaching and learning are used.

- Learning progresses from the concrete to the abstract.

- Practice in developing skills is balanced with experiences to provide meaning to drill.

- Individuals are given opportunities both to be self-directive and to work with others.

- The teaching-learning atmosphere is free from tension and fear.

When we meet these criteria through the use of any media--in any kind of space--we will have reached some of education's most desirable goals.

Elwood H. Lehman

A group of junior college administrators visited a number of junior colleges and universities to observe at first hand, among other things, some of the new facilities these institutions are providing for the development and use of new media and new instructional techniques. The next few slides will show you some of the instructional materials centers, television studios, and libraries that have been constructed.

Note: Slides were used by Dr. Lehman to point up innovations in plant design for educational media facilities that were both unique and practical. These included:

- Florida--Atlantic University, where buildings are clustered around a four-story storage retrieval center. Architects developed the design after extensive and intensive curricular planning by three separate groups of "top" educators. The architects were asked to draw up a functional building based on a master plan developed by one of the groups of educators to meet educational needs. This storage retrieval center was the result. Students and teachers may draw materials from it with no loss of time or motion. It contains a vast amount of knowledge in many forms. A student may use multimedia in working on his project or study various media on his own time and then take a test on them.

- Air Force Academy--An instructor-operated ETV console helps the instructor arrange and control his own presentation.

- Stephens College--A comparatively small college makes effective use of the telephone conference "net" in which classes may "tune in" and take part in telephonic discussions, a method proving of value in assuring high quality instruction.

Slides illustrating the uses of sliding blackboards, the overhead projector "buried" in desks, and a bank of six TV "stations" for simultaneous (closed circuit) telecasts were shown, with comments by the speaker.

Mildred Brackett

Architects and school administrators in planning new schools seem to compete with other building planners to conceive startling new designs and new terminology to accommodate and describe instructional materials services. Some of these new designs are symbolic of forward thinking or of experimental educational programs; others seem to house programs that are really not new at all. The same observations may be applied to terminology. However, as most of our successful merchandisers are only too well aware (from the consumer's point of view, at least), sometimes new packaging and labeling do turn the trick and the same old familiar product assumes new vitality with its new dress and name.

During this workshop we are learning about some of the truly new ideas in the techniques, materials and equipment of communication. Many of these ideas are already influencing the planning of educational facilities, and this is necessary even though our "economy of abundance" has not yet provided the abundance and quality of instructional materials and services that are identified by many authorities as essential to our existing educational programs.

Regardless of design and labels, school facilities must be planned and built so that they at least permit education to take place over a period of time that will encompass many changes in educational programs and the materials and equipment that support the programs. A well planned building can, of course, do a great deal to facilitate education just as a poorly planned or outdated facility can retard the program.

Probably the most important characteristic to keep in mind for any building now being planned or constructed is flexibility to allow adaptation without major structural changes. However necessary it is to plan for the future, we cannot forget planning for today. It is axiomatic that our ten-year-olds in 1965 will never again be ten and they must be served as well as the ten-year-olds of tomorrow who may enjoy educational advantages we cannot even imagine. It is no easy task to plan a school that must serve today as well as twenty or so years hence.

In order to give you a look at one new school demonstrating original planning and design, and where different terminology has been introduced, I have some slides showing the plan of the Valley Winds School in the Riverview Gardens School District, St. Louis, Missouri.

To quote from the publication "Profile of a Significant School," prepared by the Staff of School Planning Laboratory, University of Tennessee, Southeastern Regional Center, Educational Laboratories, Inc.:

> Nothing here is absolutely new and untried, but the startling array of new structural approaches to old educational problems is enough to make even the casual observer ask for reasons--and the answers are why this school is significant. The casual observer is struck immediately with a number of details such as:
>
> 1. The snail-shell, caracole shape
> 2. The perception core
> 3. The internal stream-aquarium
> 4. The absence of inside walls
> 5. The children's theater and acting tower
> 6. The satellite kitchen
> 7. The shelter for physical education
> 8. The "nerve center"
> 9. A soft floor covering
> 10. Air-conditioning
>
> These items do not just arrive from a potpourri of possible new approaches. They arise naturally and organically out of a new sort of program conceived and planned by the community, a program which requires new building concepts, new furnishing and staffing concepts, new problems and new questions.

Since our special interest is in the instructional materials facilities, the "Nerve Center" and the "Perception Core" may need further description since these, with the Curriculum Center, Projection Room, Children's Theater and Art Center, comprise the learning resource center. The Nerve Center, a circular room half a level below the basic floor level of the building, accommodates activities as are usually carried on in offices, workrooms, and curriculum laboratories in our schools. Later, the Nerve Center will be connected with each Instructional Area by a tape system. Basic outlets and nerve panels are already installed in all appropriate areas of the building. The "Perception Core" is used by children for independent and group instruction very much as our "school libraries" could be used if they were adequately equipped and stocked with sufficient variety and quantity of materials.

There is an almost overwhelming number of unique features in this school. Whether you like the plan and the program does not make much difference. It is a "significant" school and its description here will have served its purpose if it helps us to realize that when we think of planning facilities, we don't always have to think in rectangles and circles. Experience will soon show whether or not novel and ingenious shapes solve or create problems.

Guy Helmke

When, a dozen years ago, the infant television came knocking tentatively at our educational door, some forward-looking school people hailed him as the answer to our many current problems. Could television assist in solving the imminent teacher shortage? Did television have a potential role in in-service education of teachers? Could motion picture films be distributed more efficiently by means of television? Now, grown into a bumptious teenager, television has not only earned a seat in our pedagogical chimney corner but has hopefully begun to solve these problems. In California, television is assisting school districts to meet a teacher shortage in mandated foreign language instruction, and is distributing in-service motion pictures to teachers as well as instructional films to students in classrooms.

The slides you have seen have presented a picture of the growth of instructional television in California from 1962 to the present time. During this time, the number of pupils being instructed by television has risen from an estimated 350,000 to an estimated 1,000,000. The number of educational broadcast stations has increased from two to seven. The number of closed circuit facilities, large and small, has increased from forty-five to about eighty. In 1957 permissive legislation was passed allowing schools to contract for instructional television services. In 1962, legislation permitting public schools to own, lease, and operate television facilities was passed. In 1965, the Farr-Quimby Bill appropriating $800,000 to reimburse school districts at 50 cents per pupil instructed by television was passed.

You visited by means of the slides the broadcast production studios at stations KVCR Channel 24 at San Bernardino Valley College and at KCSM Channel 14 at San Mateo College and observed the film chains and videotape recorders so essential to both their broadcast and closed circuit facilities. You visited Anaheim School District which, with its connection by cable to neighboring Santa Ana, is the largest closed circuit facility in California. You visited Lafayette Elementary School District where six schools are connected by coaxial cable to a small studio building housing cameras, film chain, videotape recorders and attendant switching equipment. You visited Fremont Union High School District which has equipped each of five high schools with a multi-channel distribution system, a movable console, film chain and a videotape recorder and has staffed each high school with a full-time television director and a technician. You visited Ripon Elementary School which is equipped with a master antenna and reception-distribution system connecting seventeen rooms but also with the capability of a multi-channel closed circuit television system all for a cost of less than $45 per classroom.

In summary, what are the implications of this significant growth of and diversity in the use of television for instructional and school planning in California? The present pattern indicates a preponderance of the utilization of broadcast programs by the elementary schools whose organizational pattern is better suited to broadcast television for scheduling. Exceptions are at Anaheim and Santa Ana, and at Lafayette where comparatively large amounts of district funds are made available for local production. The secondary schools are putting money into closed circuit systems because almost no secondary level broadcast programs are available to them, and significant opportunities in utilization are made available to their more diversified needs in scheduling by means of multi-channel closed circuit systems utilizing film chains and lower priced videotape recorders. Junior colleges appear to be in a fortunate position both in their ability to hire faculty personnel suited for larger scale television facilities and to have available in technical classes student assistant personnel to cut down much of their operational costs.

During the planning stage, before entering into television as a part of its instructional program, a school district should give consideration to the following questions:

- What is the use to which television will be put with relation to the district's individual, local capabilities and instructional pattern?
- Should available programs on film or videotape be planned before expensive production is considered?
- What are the yearly costs of operation and maintenance in terms of personnel as well as in terms of capital outlay and replacement costs?
- How do the plans for initiating the television program tie in with future plans regarding expansion of facilities, personnel and maintenance and with the constant advance in television technology?

Teacher Competency in AV Education

Carl A. Larson

Carl A. Larson is Chief of the Bureau of Teacher Education and Certification for the California State Department of Education. In his present assignment he heads up consultant services to colleges and universities in California on teacher education and certification.

Many audio-visual educators have expressed serious concern over the changes in credential requirements that make course work in Audio-Visual Education, or its equivalent in experience, no longer a requirement for teachers. We may not recognize it but it would be a blessing in disguise if properly handled. Then too it could be serious. However, before judgment is passed on this matter, it seems important for us to understand the legal background of the problem and what you as AV leaders can contribute to the present situation.

Background. The two semester hour Audio-Visual course requirement established in 1948 is no longer a requisite for teachers. However, administrators, supervisors, coordinators and directors of AV education must hold appropriate supervision and administration credentials. Education Code Sections 13055 and 13056, and Section 78.11 of Title 5, enumerate the functions requiring supervision and administration credentials.

Legislation in 1961 changed state teacher certification laws. Amendments to the law were made in 1963 and 1965. The present law requires five academic years of college or university preparation for elementary teachers, but the fifth year of preparation may be completed within seven years of first employment as an elementary teacher. State statutes give the State Board of Education authority to grant all other standard credentials on a partial fulfillment of requirements basis. The Standard Secondary (grades 7-12) and Standard Junior College credentials are issued on condition of partial fulfillment. Five years to complete the fifth year of preparation are provided.

As a minimum an elementary teacher now is required to earn a major in a subject commonly taught in the public elementary schools. If his major is not commonly taught, two minors in subjects which are taught are required. These requirements have important implications for preservice and in-service education.

What These Changes Signify. New credential requirements minus any AV requirement leave us at least one important alternative which in my estimation is superior to what we had. The AV requirement can be "transferred" totally to the accreditation program of the State Board. Criteria or standards for the accreditation of teacher education programs have a greater chance of influencing the quality and kind of instruction in institutions of higher education than does a single requirement in our Administrative Code. Accreditation standards are of a "higher order" as it were than a two semester hour requirement. Accreditation criteria should be based upon the academic and experience background needed by professional school employees. In the new media field there is a need to prepare all teachers to utilize the many new devices, as well as the conventional ones, in today's schools. The competencies required a few years ago are no longer adequate. Through the accreditation process we can assure ourselves of this fulfillment much better than through the sole reliance on credential requirements. Both, of course, would be superior to either one alone.

Problems of Accreditation. The development of suitable criteria or standards for accreditation is difficult and it is in this area that we need your help. If standards are too specific they may serve to limit or "hamstring" program development and creative efforts. If they are too general, they are meaningless. The more specific standards are, the faster they go out of date. Our major problem is to make them applicable on a statewide basis with enough "teeth" in them to be effective, and at the same time make them usable by a member of an accreditation team who is not an AV specialist. (Obviously, an accreditation team could not have specialists in every subject or field of educational activity.)

We do have fairly new accreditation criteria developed by AV leaders. However, over the past several years there has been a moratorium on accreditation visits in order to implement new credential requirements. This fall we will resume visits. The criteria can be tried on an experimental basis to determine their strong and weak points.

You as leaders can assist when the time comes to develop better criteria or standards and implement more effectively the ones now being used. Little known among Audio-Visual personnel who have expressed concern about the loss of the two semester hour Audio-Visual requirement is the Title 5 criteria (Section 822[c]); that every institution of higher education to be accredited by the State Board of Education for teacher education must require instruction in AV for all of its teacher education students. This should be reassuring particularly in conjunction with the establishment of criteria for use in connection with the State's teacher education accreditation program.

Chapter 5

Guidelines and Recommendations

After a week-long consideration of implications of new instructional media in changing curriculum patterns and what these changes mean for instructional materials services and leadership functions, each of the six Workshop Groups reported on its findings, major problems, concerns, obstacles, and recommendations relevant to the particular aspects of the subject it had studied.

Areas of concern for the six groups included the following: Group 1, New Media and Changing Educational Patterns; Group 2, New Media and Their Effects Upon Teaching and Utilization Practices; Group 3, Teacher Education--Pre-service and In-service; Group 4, Organization and Administration of the Instructional Resources Center; Group 5, New Media and the Design of Facilities and Space; and Group 6, New Media and the Changing Role of Leadership Personnel.

GROUP 1

NEW MEDIA AND CHANGING EDUCATIONAL PATTERNS

COMMITTEE MEMBERS: Dale N. Anderson, Isabel Beck, Charles S. Callin, Edward C. Clemmer, Esther M. Dahl, Sally Y. Davis, Marcia F. DeVoe, Gladys Dotson, Grace Elam, Marion Fetz, Allan W. Fink, Wendell C. Ford, Roy C. Hill, Victor M. Hyden, Jr., Howardine Hoffman, Sue E. Hudson, Carl F. Karasek, Anna Mary Lowrey, C. Richard MacNair, Joanne McHenry, John E. Moore, Ed F. Quinnell, Armen Sarafian, Willard H. Saucerman, Hazel Inez Stivers, Louis A. Thompson, Donn B. Wallace, Carl G. Winter, Sylvia Ziskind

Summary Report - Isabel Beck

General guidelines for any consideration of new media should recognize the following changing educational patterns:

- The student is changing from a "recorder" who plays back at examination time to an "investigator" who demonstrates what he can do every day of his life.
- The teacher is changing from a "storage and retrieval unit" to an "environmental designer."
- The instructional climate is changing from one of competition among students for prizes awarded by the teacher to that of a cooperative adventure among students and teachers for shared learning and joint evaluation.
- Instructional philosophy is changing from "the greatest good for the greatest number," to "the best for each."

General conclusions and recommendations on aspects of new media and changing educational patterns are:

- Curriculum planning must be based on valid research and be a cooperative and creative effort by personnel well supplied with material resources and current information.

- Curriculum trends are based on a broader range--from pre-school to adult retraining; they are also becoming interdisciplinary, reach greater depths, and must undergo continual revision.

- Instructional patterns include: (1) a learning environment that fosters independent study and original inquiry, (2) a social climate that requires of the student more responsibility for his own learning, and (3) a teaching facility that capitalizes upon various unique strengths and enthusiasms of individual teachers.

- Many instructional materials are now being developed with: (1) an open-ended design that leaves some questions unanswered rather than closing off further inquiry or discussion, (2) single concept units to help meet individual needs, (3) a variety of media to meet requirements of instructional sequences for learners of various ages and individual differences, and (4) a repertoire of styles which recognize the value of preserving authentic ethnic forms of expression.

Detailed Report - Group 1

If new media are to make their greatest contribution to the education of each individual, it is essential that we be clear about curriculum designs, objectives, and specific behavioral goals. Group 1 recommends that such curriculum designs be planned jointly by specialists in subject matter, growth and development, curriculum theory, and instructional resources, and that their efforts be based on valid research data. It is hoped, therefore, that a state research information retrieval center will be organized to make available to curriculum planners the most current and substantive research in existence. In carrying out curriculum planning it will be regarded as essential to:

- Conserve time, energy, and resources through extension of areas of cooperation wherever these are compatible with local needs.

- Develop educational experiences based upon full knowledge and understanding of learning, the learner, individual and societal needs, talent capabilities, and material resources--with appropriate involvement of professional curriculum workers and lay persons.

- Use "team" and "systems" approaches on either local or regional bases to improve the quality of educational experiences.

- Make better, more creative uses of personnel and resources in planning curriculum and developing materials resources. Cooperation and the voluntary association of many locally autonomous groups, all operating within the established state framework, should be sought in this process.

- Seek to find ways of increasing the immediate availability of instructional resources needed to carry out educational plans.

- Undertake a program for producing or developing instructional resources needed to achieve precisely stated educational objectives.

It is predicted that, within five years, half the people of the United States will be under twenty-five years of age. While the extent to which these young people and others will be involved in education will vary in degree and assignment, it is thought to be imperative to define various instructional or educational goals to serve this polyglot of personalities--ranging in age from pre-school through college and adulthood--and to discover how new media can best serve their needs.

Group 1 also posed a number of additional questions and made numerous suggestions with regard to planning uses of new media, as follows:

- How can educators live up to their responsibility to achieve accepted educational goals within feasible limits of financial support?

  1. It is essential to continue to explore together the ways and means to make more effective use of new media.

  2. There should be increased recognition of the need to develop better programmed learning materials.

  3. The school program and schedule should be planned so as to free teachers to participate in in-service education and in selecting proper instructional materials.

- How can skilled personnel be trained to assist teachers in preparing instructional materials?

  1. Provide para-professionals trained in the preparation of new educational media, with competencies in graphic arts required for transparencies, charts, signs, tape duplication, and photography.

  2. Junior colleges should develop an occupational curriculum for preparing such persons.

- What are the chief obstacles to making optimum use of new media in the present-day curriculum?

  1. Among obstacles are lack of sufficient "excellent" materials.

  2. There is great need for the following: (a) problem defining films rather than films with "canned" solutions, (b) materials designed to excite children about learning and continued exploration, (c) single concept materials to meet individual needs, (d) media that lead to the development of divergent thinking in students, and (e) materials that bring students to the "forefront" of knowledge.

- How should curriculum and media specialists work with commercial enterprises in developing media to meet changing curriculum requirements?

  1. Schools should purchase the best, ignore the rest.

  2. Workshops like the Tahoe Workshop should be established to bring together educational leaders and producers of materials to enable them to think together about desirable qualities of materials.

3. Cooperative activities should be carried out by curriculum specialists, librarians, learning resources personnel, and others working together with commercial interests to design materials suitable for today's educational requirements.

- How can new patterns of curriculum be implemented?

1. There should be available more materials and equipment for individual pupil use.

2. The teacher should be encouraged to become a planner of learning experiences and a creator of a climate of learning through (a) independent study and (b) the acceptance by each student of a greater responsibility for his own learning.

- How do we meet the challenge of obsolescence?

1. Rapid change brings with it obsolescence. Order and organization, better and longer term planning for change, will ultimately provide the best hope for evolutionary progression.

- What are means of bridging gaps between curriculum design and actual implementation of the curriculum?

1. Curriculum centers should be initiated to provide research, development, and housing of instructional materials along these lines of organization: (a) each school unit should contain a resource center housing those instructional materials frequently in use. This center should be linked with resource centers of wider scope for resource and information retrieval; (b) educational units such as local school districts should operate a resource center containing a wider collection of instructional media and materials than are now available at the local school level. This center should be connected with the state or regional center and thus provide access to more complete resource retrieval; and (c) regional resource centers containing rich and varied collections of informational and instructional materials should be established to serve extremely large school districts or a combination of several smaller ones. These centers should reflect in their composition the developments and culture of our expanding technological civilization.

2. An educational system or guidebook clearly defining the characteristics and advantages for educational usage of the various message media should be made available to school districts and their staffs in order to appraise each medium. This information system would be especially useful in assisting with the in-service training of teachers.

3. Each individual school district, based upon its own planned and projected program for curriculum development, should decide upon types and amounts of instructional media to be supplied each teacher or school. Immediate and long-range plans should then be developed to provide this equipment and its supportive supplies in required quantities. Districts might find the use of a standardized equipment list for each grade level helpful. Such a list should not, however, be construed as determining the "maximum" amounts of such equipment to be provided for any one school or classroom.

4. Each educational unit should recognize the urgent need to provide a well-rounded in-service training program to effect improved utilization of new educational media.

5. Steps should be taken to achieve cooperation, rather than competition, among different groups of educational personnel now involved in producing, distributing, and supervising the use of various kinds of instructional resources (librarians, audio-visual specialists, television producers, and the like).

6. Proper recognition should be given to the efficacy of the "one-to-one" relationship of media specialist to teacher in effecting improved utilization.

7. Educational media specialists themselves should "practice what they preach" by using an effective variety of media in their own presentations.

8. Less emphasis should be placed upon "hardware" and more upon the improvement of teaching and learning through proper use of educational media.

GROUP 2

NEW MEDIA AND THEIR EFFECTS UPON TEACHING AND UTILIZATION PRACTICES

COMMITTEE MEMBERS: Phyllis Kennedy Ahern, John F. Bahnsen, Martin Bauman, Una Burris, Florence Clemmer, Will S. Cluff, Jr., John C. Crabbe, Mrs. Francis J. Ebert, David R. Eshelman, Frank B. George, Ben L. Gumm, Mrs. Carl F. Karasek, Mrs. Robert McConnell, Hope McKay, Wanda Meier, Bertha Montenegro, Robert E. Muller, Glen R. Phillips, Donald Reynolds, Esther Risdon, Ernestine Runner, Margaret Sarafian, Kathryn Saucerman, Henry R. Schott, Luther H. Smeltzer, Joseph L. White, Luella Wiens

Several effects of new educational media upon teaching and utilization practices were described by Group 2. It was believed, for example, that they would:

- Broaden the horizons of learning by opening new avenues of thought through exposure to new experiences, allowing for flexibility in individual instruction, allowing pupils the experience of discovery, exposing pupils to experts in many fields, assisting in forming and clarifying concepts, assuring quality education for all pupils, and placing new and varied tools directly in the hands of pupils.
- Broaden the scope of teaching by creating new vehicles for the effective dissemination of knowledge; allowing for flexibility in grouping; encouraging teacher creativity and ingenuity; lengthening the "reach" of teachers; compensating for and strengthening the value of individual differences among teachers; permitting rapid dissemination of information of a current nature; and providing "outside experts" for every classroom.

- Alter the role of the teacher by increasing his awareness of available media; developing a heightened sensitivity to needed ways of improving his teaching; increasing his effectiveness as a member of a teaching team; and improving his competence in utilizing media.

- Create problems and concerns by standardizing curriculum content (perhaps unintentionally); overwhelming the teacher with a mass of unfamiliar technical equipment; requiring time and talent for preparing and selecting content material; and possibly changing the teacher's role in the direction of becoming an equipment manager.

- Involve administrators and supervisors by requiring greater awareness and involvement of professional staff in the selection and utilization of appropriate educational media; requiring better ways of disseminating information about the availability and content of media; improving and accelerating methods and means of providing necessary in-service education; improving methods of distributing educational materials; providing building media coordinators with sufficient released time for their work; providing sufficient time, money and personnel for needed research and development; requiring consideration for media utilization in plans for new building construction or remodeling; establishing equipment ratios capable of meeting changing needs; establishing decentralized instructional materials centers stocked with less expensive and heavily used materials; and providing increased availability of relatively expensive materials and equipment at the district level.

- Involve the community by creating a better informed citizenry capable of sharing with educators the responsibility for proper interpretation of school programs; bringing the community closer to the school and allowing greater utilization of community resources; enabling boards of education to communicate with the public concerning school efforts and goals; and establishing a climate conducive to understanding, participation, and support of school programs generally.

Guidelines for elimination of certain problems involved in procurement, production, and utilization of new media were suggested by Group 2:

- Procurement. Careful screening and evaluation of commercially prepared materials, recommending the commercial production of needed and desirable materials, establishing standards for purchase and evaluation, and selecting media most applicable to educational needs.

- Production. Establishing a graphics aid department; providing necessary educational media personnel; interpreting concepts from abstract to concrete material; developing instructional materials aids and ideas; providing an instructional materials center at the local school level; and using local commercial graphic artists and facilities.

- Utilization. Providing personnel to aid in adapting the use of media in individualized programs of instruction; providing aids to help teachers learn control and use of equipment and materials; effecting total utilization of new media in applicable teaching-learning situations; and spreading information concerning instances of especially successful utilization practices.

GROUP 3

TEACHER EDUCATION--PRE-SERVICE AND IN-SERVICE

COMMITTEE MEMBERS: Leonard H. Bathurst, Louise C. Brown, George E. Dotson, James A. Fee, Frances Fisher, Lloyd N. Garrison, Kenneth K. Jones, J. Allen Larner, Alleene Luther, Robert McConnell, Carl B. Manner, Clarence Petersen, James L. Rhodes, Elinor Richardson, George H. Roseman, John C. Schwartz, Jr., Wanda Shomate, Pearl Turner, Vernon H. Weybright, Elizabeth White, Mrs. J. Post Williams, Ken Winslow

Group 3 committee members agreed upon the importance of five current trends as bearing upon increased recognition of the importance of new media in modern education:

- Curriculum changes as affected by new legislation, the reorganization and the introduction of new subject matter, changes in methodology and changes in philosophy.

- Social changes such as those resulting from population explosion, social mobility, efforts to combat poverty, and others.

- Increased availability of technological materials and equipment and new uses of presently available equipment.

- New building facilities providing better opportunities to incorporate newer devices, materials, and teaching designs in instruction.

- Increased awareness and desire of teachers, administrators, media specialists, members of the community and students to use newer media as natural avenues for learning.

Members of the Group 3 committee also indicated strong support of the following statements--all considered essential to any program of teacher education:

- The beginning teacher should bring to his profession basic knowledge, information and skills, and the ability to improve.

- School districts should expect to assume the primary responsibility for improving and updating teacher information and skills with regard to the use of new media.

- Competence with new media requires the cooperative effort of the public schools, institutions of higher education, the prospective teacher, and society at large.

- The school atmosphere should be conducive to the growth of such competence. For this it is essential to have a feeling of mutual respect, an acceptance of each individual, encouragement of initiative, and freedom from personally threatening pressures or tensions.

- Recognition and definition of specific teaching or learning goals are basic to the proper selection and use of educational media. Media should be used to improve teaching and learning.

- Educational media personnel should be especially conversant with the potentialities of and effective ways of using educational media. They should endeavor to keep up-to-date on methods, materials, and equipment.

Pre-service Education

Five important objectives of pre-service education in educational media were described by Group 3, as follows:

- To provide an overview of the characteristics and usefulness of various media resources.

- To develop positive attitudes toward educational media generally.

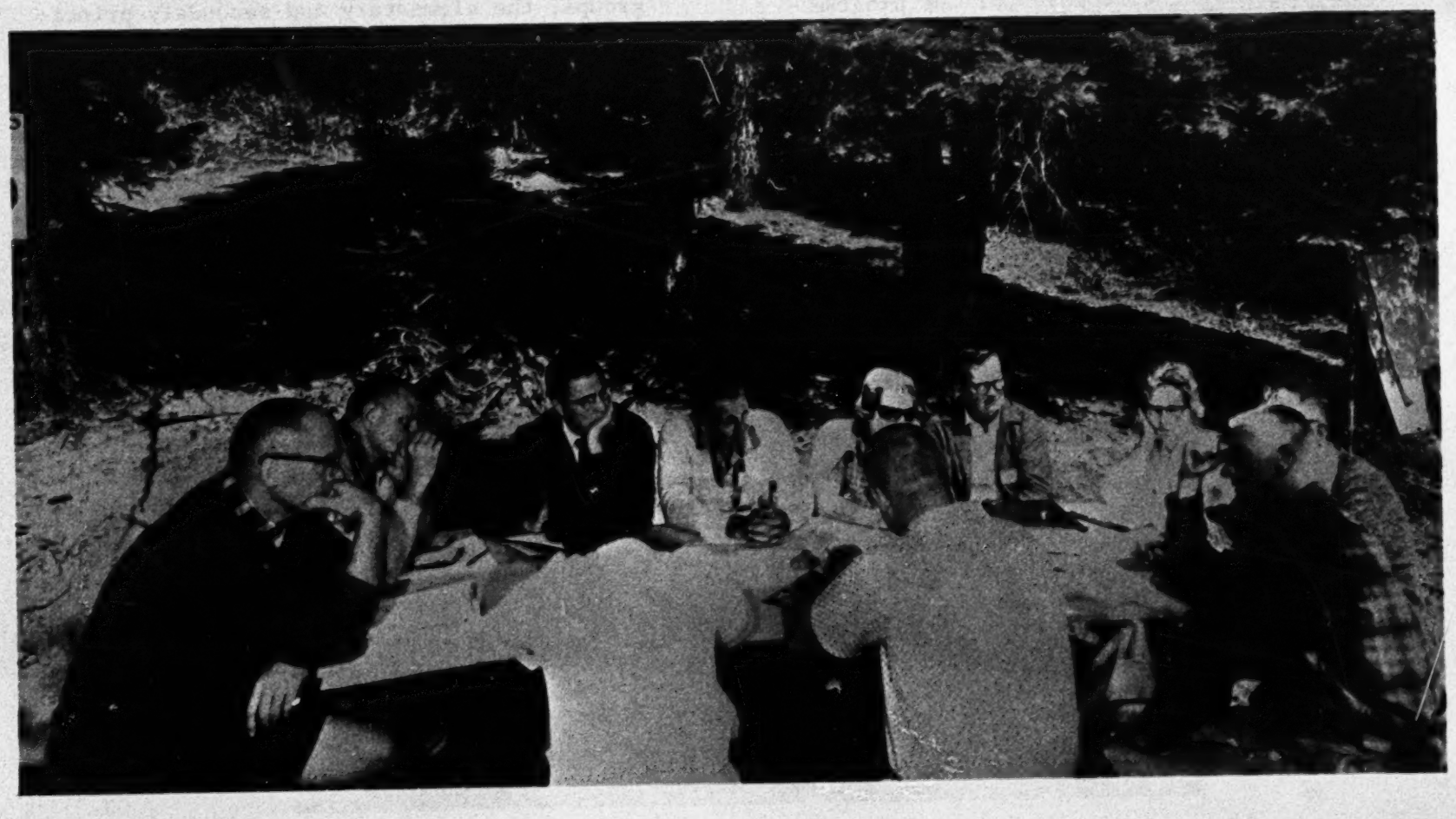
- To provide experiences in the successful utilization of educational media and equipment.

- To provide similar experiences in producing simple educational materials.

- To provide knowledge of research essential to planning future developments and technological improvements.

Several methods of implementing such pre-service programs were mentioned:

- Teach courses about the media, using such approaches as: separate courses, integrated courses, or combination of these--often using new approaches in their teaching.



- Involve students in observation, participation, and directed teaching experience in which educational media are used well.

- Give attention to exemplary uses of media in other college courses, especially in professional methods courses.

Relationships of pre-service to in-service educational programs were believed to center on the following factors:

- The media instructor and other professional educators should maintain continued contact with beginning teachers in the field.

- Similar contacts should be maintained with district and county offices.

- These contacts should lead to needed revisions in pre-service programs and provide assistance in planning future in-service programs.

In-service Education

A number of factors determining planning and providing for in-service teacher education were identified and recommended:

- Determine the needs. Possible sources of information about in-service education needs are: teachers, administrators, consultants, surveys, members of the community, students, and research.

- Narrow the list of needs to those of highest importance.

- Select ways to provide in-service education, such as: a general presentation by an "expert," workshops, demonstrations, observation; action research; pilot projects; committee assignments; the professional literature; college courses; and person-to-person exchange and sharing of ideas.

- Obtain continuing support for the program through such means as administrator interest, empathy, and organization; knowledgeable people; providing adequate materials, equipment, and space; providing "prime time" (during the working day) for in-service education activities; provide salary increments or other financial remuneration (remission of tuition fees, for example).

- Continuously evaluate the in-service program in a permissive atmosphere of mutual respect for individual differences.

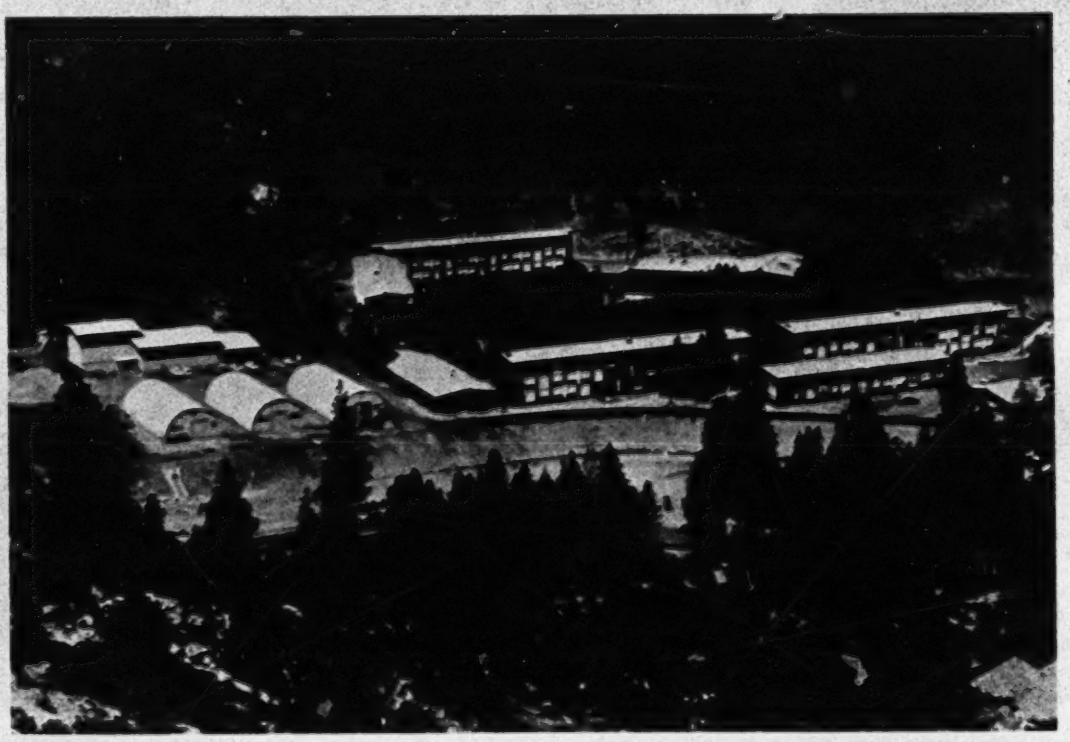
Recommendations

Group 3 proposed three recommendations to improve and expand both pre-service and in-service teacher education:

- It is imperative that the leadership for teacher education in educational media at institutions of higher education become organized and unified under one administrative head. Fragmentation hurts the total effort--which should be the improvement of instruction in educational media.

- Leadership should be provided at the top levels of administration for public supported colleges and universities. Each institution of higher education and the offices of the President of the University and the Chancellor of the State College System should have one or more media specialist as well as stated policies concerning media instruction and services. Similar form of coordination should also be supplied by the State Department of Education or other appropriate agency as decided by the institutions involved.

- It is imperative that appropriate bureaus of the California State Department of Education assume responsibility for coordinating an immediate attack upon problems of in-service education for both teachers and educational media leadership personnel throughout California. Some of the organizations that should be involved in this effort include AVEAC, CSLA, ETV, programmed instruction groups, the elementary and secondary principals associations, and the colleges and universities serving teacher education in various areas of the state.



GROUP 4

ORGANIZATION AND ADMINISTRATION OF THE INSTRUCTIONAL RESOURCES CENTER

COMMITTEE MEMBERS: Frances L. Bauch, Marilyn Benefield, Charles L. Betts, Lawrence H. Billing, Nola L. Bonnell, Myer L. Crumb, John E. Fetz, Robert Gerletti, Alvin L. Gregory, John Vincent Malarkey, Marion C. Morse, Donald V. Pedersen, Allan Risdon, Rintha Robbins, Genev V. Roberts, Jack A. Schirmer, Harold R. Skinner, Lyndon Vivrette, Warren Lindle Wade, Eugene H. White

Current technological changes occurring in all areas of human endeavor--including education--give rise to the need to evaluate present modes of behavior. The educator, particularly, must encourage the attitude of questioning, of evaluating all aspects of his work. Particularly to the point of this discussion, he must assess the proper role of instructional resources and of the instructional resources center that houses them--its organization and plan of administration.

Special Problems

Several problems face those who are assigned roles in organizing and administering instructional resources centers:

- Various types of administrative patterns for the instructional resources center must be studied.
- The proper roles of the instructional resources center within the framework of school administration must be determined and defined.

- Personnel must be trained and recruited to perform assigned roles in such centers during this transition period.
- Proper uses of monies obtained through various government programs must be determined (National Defense Education Act, Elementary and Secondary Education Act, and others).
- The proper physical environment for the instructional resources center of the future must be determined.
- Ways must be found at all administrative levels to develop good communication and to disseminate adequate and accurate information concerning educational media.
- Educational personnel must be assisted in making an intelligent approach to the evaluation and procurement of worthwhile instructional materials and equipment.
- An adequate in-service education program must be instituted to extend and improve the use of educational media.

The Instructional Resources Center

The instructional resources center should seek in many ways to improve education. Required are:

- A pattern of organization that is flexible--geared to local, district, and state administrative needs.
- Full and proper use of available local, state, and federal funds.
- Adequate training of personnel charged with instructional media responsibilities.
- Special attention to instructional resources needs to implement changed curriculum and instructional practices (large- and small-group instruction, self-instruction, and the like).
- Special attention to the shifting and increasing responsibilities of those involved in administering instructional resources programs.

Recommendations

Group 4 made a number of recommendations relative to the organization and administration of instructional resources centers:

- The roles and responsibilities of the administrative staff of instructional resources centers should be defined as media specialist, educational leader, long- or short-range planner, staff coordinator, consultant, etc.
- Separate instructional resources centers should be placed at state, county, district, and school levels.
- Good classroom teachers capable of competently handling equipment and materials should be recruited as professional personnel ior these centers.
- Information about patterns of growth in the state and nation should be disseminated to all centers, regardless of level.
- Training for professional educational media personnel should include college and university courses, workshops, and development of their special abilities and interests. Librarians should have audio-visual training; audio-visual specialists should have library training.
- Professional staff for these centers should do professional work. This may be facilitated by centralizing certain processes, using computers, referring some clerical and personnel functions to a central business office, and employing skilled classified personnel to act as office managers, technicians, production aides, and the like.
- Disseminate information through regional centers; develop cooperative services for exchanging information and materials; support necessary legislation; use computers as necessary; and increase the number and responsibilities of personnel employed by the Bureau of Audio-Visual and School Library Education in the State Department of Education.
- Place the director of the instructional resources center on an administrative level commensurate with the importance of his responsibilities.
- Provide one or more trained media specialists for each school.
- Support the AVEAC-CASL recommendations regarding certification requirements for media personnel and for incorporating in subject matter courses instruction in the proper use of media.

GROUP 5

NEW MEDIA AND THE DESIGN OF FACILITIES AND SPACE

COMMITTEE MEMBERS: W. R. Bailey, Carl L. Blomquist, Richard H. Chamberlain, Dwight M. Curo, Francis J. Ebert, Lee Follis, Walter H. Harris, Warren B. Hicks, Leslie H. Janke, James O. Linn, Roy G. Mikalson, Jesse L. Ott, Pierce E. Patterson, Richard E. Roberts, Sheldon Van Duzer, J. Post Williams, Mary Louise Zingheim

Local School Plant

Based on the concept that the school building is a vehicle to support programs and should not dictate programs, the following generalizations and recommendations are offered regarding design and construction plans for school designers charged with drawing up educational specifications for the architect:

- General:

1. Planning should emphasize specifications of performance standards, with architects and industrial engineers providing materials and designs to meet these standards.
2. Planning should also emphasize placing instructional media as close as possible to the ultimate user. The extent of decentralization to achieve this goal will vary in local situations.
3. The basic classroom unit should contain all facilities (utilities) for use of all available media. (Adequate power, audio outlets, television outlets, proximity of power, and provision for future cable additions.)
4. Each school should make provisions for large group instruction and for division of this space for smaller group and individual use.

5. Flexibility of space is a most important consideration as space needs will change. Basic space is recommended with ultimate flexibility of all units within. (This can even go as far as loft construction on vertical supports with even the external wall units movable.)

6. Performance standards should include all aspects of the use of media (such as required screen heights for large group areas and the like).

7. To meet requirements of environment in fully flexible space, air conditioning is an essential.

8. Renovation of present facilities should be planned for flexibility so further changes will be possible without costly renovations.

- Aesthetic considerations for environment:

1. The aesthetic environment is highly important; it can cast a shadow over all other considerations and can enhance or detract from total educational effectiveness.

2. Design, configuration, and tone of learning spaces must combine to produce a pleasing and creative learning environment and provide for functional uses of instructional media.

3. Any effects planned purely to enhance the aesthetic effects must not detract from the use of educational media (garish colors, murals, reliefs, and extreme decors may detract, for example).

- Considerations for special environment:

1. Within minimum footage formulas there should be adequate instructional resource space and space for material preparation near teacher and pupils.

2. Classroom areas should have movable and adjustable walls suitable for various classroom functions. Variation in size for use from large group to individual should be possible. A variety of media uses in these spaces must be possible and convenient.

- Considerations for thermal environment:

1. Control of temperature and air movement in classrooms is essential. Efficiency of learning and fatigue level are closely related to thermal conditions. Lack of physical activity during the use of audio-visual materials and heat creating factors connected with those media are items for concern. Air conditioning is essential to provide temperature control and necessary air movement, including (1) controls for heat and circulation for each area used in instruction (lower temperatures are desirable in areas where audio-visual materials will be used), and (2) humidity and air filtration facilities.

2. Full air conditioning is necessary for full space flexibility and for maximum and efficient use in modern buildings. It is no longer a luxury; it can be provided within normal costs when the building is originally planned.

- Considerations for visual environment:

1. Surface textures, shapes, and colors of interior surfaces should not create tension, fatigue, or distraction. They should blend with and become a total part of the learning environment.

2. Light control should provide for variable levels of illumination to meet needs in the use of different media. Area control of light must also be considered.

3. Seating arrangements within learning spaces should be carefully analyzed and coordinated.

4. Screen surface areas should have maximum contrast capabilities.

5. Windows used should be of low light transmission types and should have no specific effect on classroom light levels.

- Considerations for sonic environment:

1. A low level of sound representing normal activity is both acceptable and desirable as it masks minor distracting sounds.

2. Acoustic qualities should be maintained in all areas even when uses of the space are changed.

3. There should be no apparent echo.

4. Present-day equipment to amplify sound makes it especially important to block off unwanted sound transmission between learning spaces. Acoustic flooring (rugs) is an aid to acoustic dampening. Original and maintenance costs of carpeted floors compare favorably with those for conventional materials. Special considerations should be given to the reduction of reverberation to acceptable levels.

- Specific recommendations:

1. Storage should be provided in areas of high demand and designed to permit easy use of equipment without wasting set-up time. Portable or movable storage units should be provided for changing patterns of need. Central storage is needed for larger, more expensive, and infrequently used media.

2. Work areas with some isolation should be provided for material preparation and study, with electrical, audio, and TV facilities, other utilities, adequate work space, and adequate and convenient storage facilities.

3. Features of the school plant which are calculated to implement use of all media efficiency must be determined by experts. Instructional materials professional should have a strong voice in determining the scheme that best promotes good media utilization.

4. Flexibility is the keynote in planning learning space, but it is also a frequently misunderstood term. Many elements that presumably support it, such as accordion walls, may actually limit flexibility. The key is really reallocation capability. The provision of basic space with means to divide and redivide with movable panels should be carefully considered. Building technology has already provided this capability; the united voice of education is

needed to carry its use still further. The industrial designer can provide what we need. If properly planned, construction costs of ultimately flexible learning space can be provided at the same or less cost than conventional building.

Centralized Media Centers

Planning of centralized media facilities should be based on the premise that activities and materials should be located as close as possible to students and teachers. Due to the complexity or cost of their preparation, however, some activities and materials must be centralized. Size and scope of the services of such centers will be determined by student-teacher population served, and by the amount of decentralization achieved in each unit served by the center. Specific areas to be considered for inclusion in planning centralized media centers are:

- Adequate professional, technical, and clerical assistance must be provided for innovating or expanding centralized services.
- Space for the following functions:
  1. Administration facilities for the center director and supporting certificated and classified staff.
  2. In-service training facilities for demonstrations, previewing, materials preparation, etc.
  3. Research facilities for professional library, curriculum materials library, individual and group study.
  4. Reference and study facilities for utilization of center materials by students and teachers.
  5. Production, maintenance, storage and technical services for audio-visual materials, printed materials, and television.
- If center facilities are not adequate to provide depth utilization of specialized materials and services, "supplementary centers" (i.e., computer operations, museums, art galleries, community education, etc.) should be provided under Title III of the Elementary and Secondary Education Act.

GROUP 6

NEW MEDIA AND THE CHANGING ROLE OF LEADERSHIP PERSONNEL

COMMITTEE MEMBERS: Robert E. Bell, Kenneth L. Bowers, Jack L. Cooper, William H. Durr, Donald L. Hathcock, Elsie D. Holland, Harvey McCammon, Josephine Munn, Leslie W. Nelson, Lester E. Newton, William B. Richmond, William E. Robinson, Helen M. Smeltzer, Raymond L. Smith, Elmer Stoll, Charles J. Vento, Robert A. Weisgerber, Fred R. Wise

For years, audio-visual leaders have promoted a "multimedia" approach to instruction. This concept has now won broad acceptance, and the time has come to transcend our present role in instructional leadership. A new dimension of leadership is demanded.

Responsibilities of the Leadership Position

In his changing role, the instructional media leader must accept responsibility for the following functions:

- Systems design, including
  1. Planning and managing the operation of an instructional media system, adapting it to change as needed, and constantly evaluating the service.
  2. Keeping apprised of implications of curriculum for building facilities design, and of building facilities design for curriculum and methods.
  3. Planning a staffing design to meet all media and curriculum needs (e.g. ITV-ETV, library, technical assistance, etc.).
  4. Encouraging decentralization of instructional materials services, as feasible.
- Coordination, including
  1. Working with staff members, guidance personnel, teachers, administrators, and other groups in the profession.
  2. Suggesting, innovating, and solving instructional problems, both group and individual, through the media approach.

3. Enlisting expert help from many fields whenever needed.

4. Encouraging cooperation and sharing of ideas, services, and materials among districts, counties, and region.

5. Aiding school personnel to design individual and group learning situations for maximum learning impact.

6. Helping others to develop projects (NDEA, ESEA, etc.) which incorporate the media approach whenever applicable.

- In-service education on all levels, including

  1. Perfecting his own skills to make demonstrations and presentations as professional as possible.

  2. Training and retraining others in techniques of the new media.

  3. Conducting workshops and meetings.

  4. Reinforcing good utilization of media in large and small group and in individual learning situations.

  5. Helping to develop unique presentation techniques.

  6. Helping teachers shift from teaching to management of learning.

- Curriculum responsibilities, including

  1. Participating in curriculum planning groups and activities to incorporate the new media in programs and publications.

  2. Influencing curriculum innovation.

  3. Keeping abreast of curriculum changes.

4. Setting up committees for evaluation and selection of media to fit curricular needs.

5. Providing new and educationally sound ideas for the improvement of public instruction to industry and government in order to organize and use most efficiently the nation's resources for education.

- Research--participation and dissemination, including

  1. Keeping up with new developments in the field and adapting them to local situations.

  2. Encouraging innovation within the educational unit through setting up pilot programs and feasibility studies on all levels.

  3. Sharing innovations with the profession by reporting local developments and projects.

  4. Identifying needed research areas.

  5. Participating in research projects.

  6. Realizing that every research project opens up avenues of research.

- Financing, including

  1. Setting up and administering the budget.

  2. Making effective use of increasingly available funds from federal, state, and foundation sources.

  3. Planning for expanding media services to private and parochial schools.

  4. Finding more creative ways to utilize present resources.

  5. Developing projects with cooperation of teacher-administrator-staff groups.

- Public and interagency relations

  1. The public by interpreting the educational program, using new media; serving community groups as far as possible; contributing to educational programs within business and industry by continuing liaison with training directors; and helping fellow educators to make public relations activities audio-visual in nature.

  2. Legislative by encouraging, supporting, and initiating pertinent legislation.

  3. Professional by assuming an active role in professional organizations and groups; and assuming increasing responsibility for professional authorship of books and articles, and the interpretation of audio-visual philosophy and practice through speeches and presentations.

  4. Commercial by transmitting technological needs of education to the media industry; keeping in touch and experimenting with new developments in materials and equipment; and setting standards according to educational needs.

- Evaluation by

  1. Constantly evaluating his position, training, and performance for upgrading.

  2. Evaluating related federal government educational projects and recommending improvements.

  3. Evaluating the performance of the media center and assessing the need for improving its services.

Competencies of Media Leadership Personnel

The educational media leader must be competent in:

- Communications theories.
- Instructional media as they apply to curriculum and learning.
- Use and development of media equipment.
- Media production and techniques.
- Curriculum philosophy, theory, and development.
- Learning theories and methods.
- Research methods and interpretation, including systems design.
- Administrative methods and practices, personnel, and finance.
- Library philosophy and procedures.

Operational Functions of Educational Media Leaders

- Accounting. Purchases, inventories, and in other ways accounts for the materials and equipment for the new media system, including a constant check on condition and obsolescence.

- Cataloging and Processing. Makes materials and equipment ready for circulation and makes their availability known to the consumer through catalogs, articles, and whatever notices are indicated. Makes use of newest techniques and operations in cataloging.

- Housing. Provides appropriate media handling devices and space to care for the inventory; proper office equipment and process for efficient operation; facilities for preview and maintenance.

- Circulation. Provides adequate and appropriate distribution system for materials and equipment; sets up a method of accounting for materials; keeps records of usage and circulation; sees to it that the right material is at the right place at the right time; facilitates interoffice exchanges of materials when appropriate; insofar as possible, eliminates barriers between the learner and the resources.

- Maintenance. Provides constant maintenance of materials and equipment through a preventive maintenance program; discards old or damaged materials and equipment; sets up a systematic, planned replacement program.

- Production. Provides production facilities and equipment for production of needed materials. Provides raw stock for such production, and helps in planning and executing the product in accordance with professional standards of excellence. (Keeps in mind that, when applicable to the need, a commercially produced product is often more economical than a locally produced product.)

Instructional Media System Staffing

Instructional media system staffing plans must:

- Recognize the highly specialized and critical contributions made by library and audio-visual personnel.
- Have a high level of responsibility in administrative leadership.
- Consider changing instructional programs and be involved in instructional program planning.

Recommendations

Group 6 proposed the following recommendations to accomplish the above objectives:

- An augmented staff for the AV and School Library Bureau in the State Department of Education.
- Instructional media leadership workshops or seminars sponsored by the State Department of Education on various subjects relating to instructional media.
- A continuation and strengthening of federal AV and library institutes to encourage leadership and proficiency in the utilization of these increasingly important media. These institutes fulfill a useful function in relation to needed in-service training and may also attract new leaders to the media field.
- Establishment by the California State Credential Committee of special credential requirements for instructional media personnel.
- Reviewing, revamping, and keeping current any staffing formulas for instructional materials services.

- A continuation and strengthening of the federal AV and library seminar programs to encourage leadership and proficiency in these increasingly important media.

- An explicit section on instructional media centers for accreditation of teacher training institutions, to be submitted by a special committee appointed for this purpose.

- A simply written, interpretive column on instructional media research in Audiovisual Instruction magazine.

SUMMARY

Tom Shellhammer

Fifteen general sessions ago--eight work sessions and six group or 48 group work sessions ago--we addressed ourselves to the purposes proposed for this workshop:

- To provide an opportunity for key audio-visual and school library personnel, administrators, and curriculum directors to consider some of the implications of new instructional media in today's changing curriculum patterns.

- To explore what these changes mean for instructional services and leadership functions.

At that first general session last Sunday night Mendel Sherman perhaps laid a third purpose before us when he stated that now was the time to renew, to appraise, and to plan how to do those things we have always wished we had had a chance to do.

A few moments ago you witnessed the conclusions of the reactions to these and other purposes as perceived by almost 200 participants at this conference. This, other general sessions, and each group meeting was perceptualized by each of us in our own unique station in time and place--just as these words now mean something different to each of you, despite the facts that we may have had similar educational experiences, attended the same colleges, hold similar degrees, and have attended the same conferences. But in your own heart you know that the needs of each cannot be met or considered as a single group. In short, then, so has this workshop been an individual experience, appraised through the values and experiences each of us brought to these Sierras.

However, even to the most casual passerby, a few reoccurent strands have visibly interlaced themselves:

- We are no longer defensive. When we awoke on the morning after October 4, 1957, we were hesitant and unsure as well as suffering with a Sputnik hangover. For a brief period the national administration was in trouble, too. But not for long. Within weeks the nation was led to believe that our Sputnik problems were really caused by our elementary and secondary school teachers. In fact, we might have believed this ourselves. For, after all, the editors of national magazines said we were guilty. But seemingly gone are the days of apology that "Johnny can't read" and the idea that we can't afford enough teachers to teach our young or to support ideas that will lead to better teaching.

- We are ready for a technological approach. The hard look, the bold look, the youthful eager look--is developing as a systems approach to education. This is the kind of talk that refers to input factors--output factors--a dimension of quality control. "Let's improve learning and let's look for the soft spots; let's clean up what can best be described as educational disaster areas." These are heady ideas for old-timers, and especially for evaluation and testing experts who have been trained to conceal more than is revealed in the numbers and witchery of the statistical charts they use to convince school boards and patrons that "all is well," and that "our district is doing slightly better than average--considering our unique circumstances." The young at heart in our group want to take calculated risks. Now is the time to designate the soft spots, the educational disaster areas, and to move in rather than to fear that to expose it will bring revengeful and punitive measures rather than a helping hand.

- There is no room at the bottom. The technology of modern instruction impresses all who stop to think of it that in a technological society there is no room at the bottom for the uneducated, the untrained.

Unless we (you) prevail, one out of five of our brand new kindergarten children will not survive on schedule to commencement day at the end of the twelfth grade. Theirs is truly an awesome casualty trail. The casualties will be especially heavy among our so-called "difficult 30 per cent"--the culturally deprived. These students are culturally deprived in terms of what the schools expect. But the very least they want to know is what you know. They will never know this, however, unless the kind of education you have talked of here this week is put into operation. You also know that this kind of education is needed for those at the other end of the

spectrum. Because you have also indicated that when a child has no sense of how he should fit into the society around him, he is culturally deprived no matter how high his parents' income may be.

- The teacher is a coordinator of learning. The good teacher must bring the full firepower of instructional materials to bear upon his students' learning. He must build a strategy and a psychology upon the hopes and dreams of the young. How can we as teachers motivate all our young to learn what they want to learn as fast as they can learn? How can we keep alive and stimulate a growing desire to learn? How can we bring the weaponry of instructional materials--the kinds of things we have discussed and demonstrated here--to bear upon our young at the earliest appropriate age?

These then are but a few glimpses of the amazing tradition of which you are now a part. Periodically gathered by invitation and encouragement, key audio-visual and school library personnel, administrators and curriculum personnel are induced to meet in conclave in the High Sierras--where in a curious blend of exhausting work schedules and wonderful nonsense they fire their best shots at the purposes at hand.

APPENDIX A

NEW MEDIA WORKSHOP PROGRAM

SUNDAY, AUGUST 1

3:00-4:00 P.M. REGISTRATION

7:30-9:00 P.M. OPENING SESSION

WELCOME AND OPENING REMARKS

Speaker: Harry J. Skelly, Chief, Bureau of Audio-Visual and School Library Education, State Department of Education

FOCUS ON NEEDS

Introduction: Kenneth Norberg, Coordinator of Audio-Visual Services, Professor of Education, Sacramento State College

Speaker: Mendel Sherman, DAVI President, Assistant Director, Audio-Visual Center, Indiana University, Bloomington

MONDAY, AUGUST 2

8:30-10:00 A.M. GENERAL SESSION

Chairman: Harry J. Skelly, Chief, Bureau of Audio-Visual and School Library Education, State Department of Education

WHY ARE WE HERE?

Speaker: Tom A. Shellhammer, Consultant in Education Research, State Department of Education

DIRECTIONS IN CALIFORNIA EDUCATION

Introduction: Mildred M. Brackett, Consultant in School Library Education, State Department of Education

Speaker: Donald E. Kitch, Chief, Supplemental Education Section, State Department of Education

OUR RESPONSIBILITIES FOR LEADERSHIP

Introduction: Francis W. Noel, Director, States Audiovisual Education Study

Speaker: J. Graham Sullivan, Chief, Division of Instruction, State Department of Education

10:00-10:15 A.M. Break

10:15-11:45 A.M. GENERAL SESSION

Chairman: James W. Brown, Dean, Graduate Division, San Jose State College

CHALLENGE OF NEW LEGISLATION

Speaker: Don White, Executive Vice-President, National Audio-Visual Association, Fairfax, Virginia

CHANGING ROLE OF EDUCATION IN RELATION TO NDEA

Speaker: Frank Largent, Chief, Bureau of NDEA Administration, State Department of Education

GROUP ORGANIZATION AND PLANS FOR GROUP REPORTS

Speaker: James W. Brown, Dean, Graduate Division, San Jose State College

1:00-1:45 P.M. GENERAL SESSION

Chairman: Elizabeth Noel, Workshop Director

CURRICULUM TRENDS IN THE SOCIAL SCIENCES

Speaker: Howardine Hoffman, Assistant Superintendent, Los Angeles County Schools

1:45-3:00 P.M. GROUP MEETINGS

3:15-4:00 P.M. GENERAL SESSION

Chairman: Lester Beck, Professor of Psychology, researcher and film producer

WHAT DOES MEDIA RESEARCH TELL US?

Speaker: Kenneth Norberg, Coordinator of Audio-Visual Services, Professor of Education, Sacramento State College

TUESDAY, AUGUST 3

8:30-10:00 A.M. GENERAL SESSION

Chairman: Claude W. Hass, Consultant in Audio-Visual Education, State Department of Education

UTILIZATION OF MEDIA, NEW AND OLD

Speakers: Richard B. Lewis, Head, Division of Audio-Visual Services, San Jose State College; Lawrence P. Frymire, Educational Television Coordinator, State of California; June Dilworth, Director, School Broadcasting, KCTS-TV, University of Washington; Claude Hass, Consultant in Audio-Visual Education, State Department of Education

10:00-10:15 A.M. Break

10:15-11:45 A.M. GROUP MEETINGS

1:00-1:45 P.M. GENERAL SESSION

Chairman: Howardine Hoffman, Assistant Superintendent, Los Angeles County Schools

FORECAST FOR ENGLISH

Speaker: Frances H. Adams, Language Arts Consultant, Los Angeles Unified School District

1:45-3:00 P.M. GROUP MEETINGS

3:15-4:00 P.M. GENERAL SESSION

Chairman: Mildred M. Brackett, Consultant in School Library Education, State Department of Education

THE EMERGING CONCEPT OF THE INSTRUCTIONAL MATERIALS CENTER

Speaker: Leslie H. Janke, Head, Librarianship Department, San Jose State College

7:30-9:00 P.M. EVENING SESSION

Chairman: Kenneth Norberg, Coordinator of Audio-Visual Services, Professor of Education, Sacramento State College

THE TECHNOLOGICAL REVOLUTION IN EDUCATION (Demonstration: "The Battle of Gettysburg")

Speakers: James Finn, Professor of Education, University of Southern California; Donald Perrin, Visiting Assistant Professor, University of Southern California; Vincent San Filippo, Douglas Aircraft engineer and graduate student, University of Southern California; Will Brydon, Executive Director of Project in Production of Prototype Instructional Materials, University of Southern California

WEDNESDAY, AUGUST 4

8:30-10:00 A.M. GENERAL SESSION

Chairman: James W. Brown, Dean, Graduate Division, San Jose State College

PRELIMINARY GROUP REPORTS

EVALUATION

Speaker: Tom A. Shellhammer, Consultant in Education Research, State Department of Education

DESIGN AND FACILITIES FOR THE LEARNING ENVIRONMENT

Introduction: Guy M. Helmke, Special Consultant, NDEA, State Department of Education

Speakers: Charles Dana Gibson, Chief, Bureau of School Planning, State Department of Education; Elwood H. Lehman, Planning Consultant, Bureau of Junior College Education, State Department of Education; Mildred M. Brackett, Consultant in School Library Education, State Department of Education; Guy M. Helmke, Special Consultant, NDEA, State Department of Education

10:00-10:15 A.M. Break

10:15-11:45 A.M. GROUP MEETINGS

1:00-1:45 P.M. GENERAL SESSION

Chairman: H. Les Nichols, Consultant in Audio-Visual Education, State Department of Education

SCIENCE, PROCESS, THE LEARNER: A SYNTHESIS

Speaker: Abraham S. Fischler, Professor of Education, University of California, Berkeley

1:45-3:00 P.M. GROUP MEETINGS

3:00-4:00 P.M. GENERAL SESSION

Chairman: H. Les Nichols, Consultant in Audio-Visual Education, State Department of Education

ADMINISTRATIVE PROBLEMS

Speakers: Francis W. Noel, Director, States Audiovisual Education Study; Harry J. Skelly, Chief, Bureau of Audio-Visual and School Library Education, State Department of Education

NEW COPYRIGHT LAWS

Speaker: Robert Gerletti, Director, Division of Audio-Visual Education, Los Angeles County Schools

NEW LEGISLATION

Speakers: Bureau Staff and Tom A. Shellhammer, Consultant in Education Research, State Department of Education

THURSDAY, AUGUST 5

8:30-10:15 A.M. GENERAL SESSION

Chairman: Francis W. Noel, Director, States Audiovisual Education Study

TEACHER EDUCATION

Speakers: Armen Sarafian, President, Pasadena City College; Carl Larson, Chief, Bureau of Teacher Education and Certification, State Department of Education

LEARNING PRINCIPLES AND CHANGING TEACHING PRACTICES

Introduction: Richard B. Lewis, Head, Division of Audio-Visual Services, San Jose State College

Speaker: Lester Beck, Professor of Psychology, researcher and film producer

10:15-10:45 A.M. Break

10:45-11:45 A.M. GROUP MEETINGS

1:00-1:45 P.M. GENERAL SESSION

Chairman: Claude Hass, Consultant in Audio-Visual Education, State Department of Education

THE NEW MATHEMATICS

Speaker: William F. McClintock, Associate Dean, Educational Services and Summer Sessions, Stanislaus State College

1:45-4:00 P.M. GROUP MEETINGS

7:30-8:30 P.M. EVENING SESSION

Chairman: Lawrence P. Frymire, Educational Television Coordinator, State of California

FRIDAY, AUGUST 6

8:30-10:00 A.M. GENERAL SESSION

Chairman: Armen Sarafian, President, Pasadena City College

INNOVATION WITH INSTRUCTIONAL TECHNOLOGY

Speaker: M. John Rand, District Superintendent, Temple City Unified School District

CURRICULUM TRENDS IN FOREIGN LANGUAGE

Speaker: Ruth Parlé Craig, Instructor in Foreign Language, Santa Rosa Junior College

10:00-10:15 A.M. Break

10:15-11:45 A.M. GROUP MEETINGS

1:00-4:00 P.M. GROUP MEETINGS

SATURDAY, AUGUST 7

8:30-11:15 A.M. GENERAL SESSION

Chairman: James W. Brown, Dean, Graduate Division, San Jose State College

GROUP REPORTS

WORKSHOP EVALUATION

Introduction: Tom A. Shellhammer, Consultant in Education Research, State Department of Education

CLOSING COMMENTS

Speakers: Elizabeth Noel, Workshop Director; Harry J. Skelly, Chief, Bureau of Audio-Visual and School Library Education, State Department of Education

APPENDIX B

NEW MEDIA WORKSHOP STAFF AND PARTICIPANTS

Staff and Participants, With Professional Affiliations

A

Frances H. Adams
Language Arts Consultant, Los Angeles Unified School District

Phyllis Kennedy Ahern
Project Coordinator, VITA, Sacramento

Dale N. Anderson
Associate Professor and Director of Radio-TV, Humboldt State College

B

John F. Bahnsen
Director of Instructional Materials, San Joaquin County Schools

W. R. Bailey
Audio-Visual Director, Riverside Unified Schools

Leonard H. Bathurst
Instructional Media Coordinator, Fresno State College

Frances L. Bauch
Audio-Visual Coordinator and Assistant Librarian, Grossmont Junior College District

Martin Bauman
Assistant Superintendent, Instruction, Placer County Schools

Isabel Beck
Curriculum Coordinator, Los Angeles Junior College District

Lester Beck
Professor of Psychology, Researcher and Film Producer

Robert E. Bell
Coordinator, Instructional Materials and Services, Redlands Unified School District

Marilyn Benefield
Audio-Visual Consultant, Los Angeles County Schools

Charles L. Betts
Director of Instructional Materials, Alhambra City Schools

Lawrence H. Billing
Principal, Brown Elementary School, Turlock

Carl L. Blomquist
Director, Audio-Visual Services, Tehama County Schools

Nola L. Bonnell
Audio-Visual Consultant and Librarian, Mariposa County Schools

Kenneth L. Bowers
Administrative Assistant, Audio-Visual Services, San Diego County Schools

Mildred M. Brackett
Consultant in School Library Education, State Department of Education

James W. Brown
Dean, Graduate Division, San Jose State College

Louise C. Brown
Audio-Visual Consultant, San Bernardino City Schools

Will Brydon
Executive Director of Project in Production of Prototype Instructional Materials, University of Southern California

Una Burris
District Librarian and Audio-Visual Coordinator, Walnut Creek Elementary School District

C

Charles S. Callin
Audio-Visual Coordinator, Hemet Schools

Richard H. Chamberlain
Coordinator of Audio-Visual Instruction, Porterville High School

Edward G. Clemmer
Coordinator, Audio-Visual Education Services, Santa Barbara County Schools

Florence Clemmer
Santa Barbara

Will S. Cluff, Jr.
Director, Curriculum Research Development, Lake Tahoe Unified School District

Jack L. Cooper
Audio-Visual Director, Yolo County Schools

John C. Crabbe
General Manager, KVIE, Sacramento

Ruth Parlé Craig
Instructor in Foreign Language, Santa Rosa Junior College

Myer L. Crumb
Director of Instructional Materials, San Luis Obispo County Schools

Dwight M. Curo
Superintendent, Taft Union High School District

D

Esther M. Dahl
Coordinator of Curriculum Materials, Alameda County Schools

Pat DaSilva
Secretary, State Department of Education

Sally Y. Davis
Curriculum Coordinator, San Mateo County Schools

Marcia F. DeVoe
Audio-Visual Education Chairman, Carmel Unified School District

June Dilworth
Director, School Broadcasting, KCTS-TV, University of Washington

George E. Dotson
Director, Educational Services, and Professor of Education, California State College at Long Beach

Gladys Dotson
Former English-Social Studies Teacher

Keith L. Draughon
School Librarian, Fresno Union School District

William H. Durr
Director, Audio-Visual Services, Santa Clara County Schools

E

Francis J. Ebert
Superintendent of Schools, Lafayette School District

Mrs. Francis J. Ebert

Grace Elam
District Librarian in Charge of Audio-Visual, Santa Maria Elementary School District

David R. Eshelman
Adult School Principal, Audio-Visual Supervisor, Tulare Union High School

F

James A. Fee
Coordinator of Audio-Visual and Television Education, Contra Costa County Schools

John E. Fetz
Director, Instructional Materials Department, Sonoma County Schools

Mrs. Marion Fetz

Allan W. Fink, Coordinator of Learning Materials, Pasadena City Schools

James D. Finn
Professor of Education, University of Southern California

Abraham S. Fischler
Professor of Education, University of California, Berkeley

Frances Fisher
Librarian, Mono County Schools

Lee Follis
Director of Instructional Materials, Fontana Unified School District

Wendell C. Ford
Coordinator of Audio-Visual Services, College of the Desert

Lawrence P. Frymire
Educational Television Coordinator, State of California

G

Lloyd N. Garrison
Assistant Superintendent, Humboldt County Schools

Frank B. George
Supervisor, Audio-Visual Services, Long Beach Unified School District

Robert Gerletti
Director, Division of Audio-Visual Education, Los Angeles County Schools

Charles Dana Gibson
Chief, Bureau of School Planning, State Department of Education

Alvin L. Gregory
Audio-Visual Services Consultant, American River Junior College

Ben L. Gumm
Audio-Visual Consultant, San Diego Unified School District

H

Walter H. Harris
Consultant, Library Services, Contra Costa County Schools

Claude W. Hass
Consultant in Audio-Visual Education, State Department of Education

Donald L. Hathcock
Director of Instructional Materials and Research, Baldwin Park Unified School District

Wilbur Hawkins
Project Director, Temple City Unified School District

Guy M. Helmke
Special Consultant, NDEA, State Department of Education

Warren B. Hicks
Director of Library Services, Chabot College

Roy C. Hill
Superintendent, San Bernardino County Schools

Howardine Hoffman
Assistant Superintendent, Los Angeles County Schools

Elsie D. Holland
Coordinator of School Library Services, Alameda County Schools

Sue E. Hudson
Dean-Supervisor, Ceres Union High School

Victor M. Hyden, Jr.
Director, VITA, Sacramento County Schools

J

Leslie H. Janke
Head, Librarianship Department, San Jose State College

Kenneth K. Jones
Professor in Charge of Broadcasting, San Diego State College

K

Carl F. Karasek
Dean of Instruction, Ventura College

Mrs. Carl F. Karasek

Donald E. Kitch
Chief, Supplemental Education Section, State Department of Education

L

Lanita Lane
Graphic Artist, State Department of Education

Frank Largent
Chief, Bureau of NDEA Administration, State Department of Education

J. Allen Larner
Instructional Television Coordinator, KIXE, Chico

Carl A. Larson
Chief, Bureau of Teacher Education and Certification, State Department of Education

Elwood H. Lehman
Planning Consultant, Bureau of Junior College Education, State Department of Education

Richard B. Lewis
Head, Division of Audio-Visual Services, San Jose State College

James O. Linn
Assistant Superintendent, Lodi Elementary Schools

Anna Mary Lowrey
Supervisor of Libraries, San Leandro Unified School District

Alleene Luther
Director, Instructional Materials, Pacific Grove Unified School District

Mc

Sarah McAdoo
Secretary, State Department of Education

Harvey McCammon
Director, Audio-Visual Services, Sacramento County Schools

William F. McClintock
Associate Dean, Educational Services and Summer Sessions, Stanislaus State College

Robert McConnell
Principal, Palm Avenue School, Wasco Union Elementary School District

Mrs. Robert McConnell
Teacher, Clemens School, Wasco Union Elementary School District

Joanne McHenry
District Librarian, Danville Union School District

Hope McKay
Coordinator of Educational Television, San Bernardino County Schools

M

C. Richard MacNair
Assistant Superintendent, Instructional Services, Duarte Unified School District

John Vincent Malarkey
Secondary Consultant and Consultant in Audio-Visual Education, Plumas County Schools

Carl B. Manner
Director, Instructional Materials, Solano County Schools

J. William May
Administrative Consultant, Bureau of NDEA Administration, State Department of Education

Wanda Meier
Consultant, Instructional Materials, Covina Valley Unified School District

Roy G. Mikalson
Dean of Evening College, College of Marin

Dean Miller
State Department of Finance, Sacramento

Bertha Montenegro
Radio and Television Chairman, California Congress of Parents and Teachers

John E. Moore
Assistant Superintendent, Instructional Services, El Rancho Unified School District

Marion C. Morse
Head Librarian and Audio-Visual Coordinator, Merced College

Stephen H. Moseley
Administrative Consultant, Bureau of NDEA Administration, State Department of Education

Robert E. Muller
Instructional Materials Consultant, Jefferson Elementary School District

Josephine Munn
Acting Coordinator of Instructional Materials, San Mateo City School District

N

Leslie W. Nelson
Professor of Audio-Visual Education, California State College at Los Angeles

Lester E. Newton
Director, Audio-Visual Education, Siskiyou County Schools

H. Les Nichols
Consultant in Audio-Visual Education, State Department of Education

Richard C. Nissen
Audio-Visual Director-Consultant, Glenn County Schools

Elizabeth Noel
Workshop Director, Sacramento

Francis W. Noel
Director, States Audio-Visual Education Study, Sacramento

Kenneth Norberg
Coordinator of Audio-Visual Services, Professor of Education, Sacramento State College

O

George W. Ormsby
Consultant in Audio-Visual Education (Retired), State Department of Education

Jesse L. Ott
Acting Director of Audio-Visual Services, California State College at Los Angeles

P

Pierce E. Patterson
Director, Audio-Visual Services, Orange County Schools

Donald V. Pedersen
Director of Audio-Visual Education, Lassen County Schools

Donald G. Perrin
Visiting Assistant Professor, University of Southern California

Clarence Petersen
Director of Curriculum, Redwood City School District

Arthur E. Phelan
Administrative Consultant, Bureau of NDEA Administration, State Department of Education

Glen R. Phillips
Principal, Sespe Elementary School, Fillmore Elementary Schools

Q

Ed F. Quinnell
Coordinator of Instructional Resources, Hayward Unified School District

R

M. John Rand
District Superintendent, Temple City Unified School District

Donald Reynolds
Research Psychologist, Human Resources Research Office, Alexandria, Virginia

James L. Rhodes
Dean of Instruction, Monterey Peninsula College

Elinor Richardson
Consultant, Division of Audio-Visual Education and Coordinator, Instructional Television, Los Angeles County Schools

William G. Richmond
Instructional Materials Consultant, San Carlos Elementary School District

Allan Risdon
Director, Instructional Materials, Butte County Schools

Esther Risdon
Teacher, Thermalito Elementary School, Oroville

Rintha Robbins
Director of Instructional Materials, Madera County Schools

Genev V. Roberts
Coordinator of Audio-Visual Instruction, Shasta County Schools

Richard E. Roberts
Superintendent, Pacheco Union School District, Redding

William E. Robinson
Director, Instructional Materials Center, Sutter County Schools

George H. Roseman
Professor of Education and Coordinator of Audio-Visual Services, Chico State College

Ernestine Runner
Director, Audio-Visual Education, San Bernardino County Schools

S

Vincent San Filippo
Douglas Aircraft engineer and graduate student, University of Southern California

Armen Sarafian
President, Pasadena City College

Margaret Sarafian
General Coordinator, Temple City Unified School District

Kathryn Saucerman
Librarian, Newport Beach, Horace Ensign School, and Instructor, Chapman College

Willard H. Saucerman
Assistant Superintendent, Instruction, Orange County Schools

Jack A Schirmer
Coordinator, Instructional Materials, Norwalk-La Mirada City School District

Henry R. Schott
Media Laboratory Chairman, Merritt College, Oakland

John C. Schwartz, Jr.
Director, Instructional Materials Laboratory, San Fernando Valley State College

Tom Shellhammer
Consultant in Education Research, State Department of Education

Mendel Sherman
DAVI President, Assistant Director, Audio-Visual Center, Indiana University, Bloomington

Wanda Shomate
Supervisor-Consultant in Charge of Audio-Visual Department, China Lake Elementary School District

Robert S. Shute
Administrative Consultant, Bureau of NDEA Administration, State Department of Education

Harry J. Skelly
Chief, Bureau of Audio-Visual and School Library Education, State Department of Education

Harold R. Skinner
Coordinator of Audio-Visual Services, Sonoma State College

Helen M. Smeltzer
Coordinator, Audio-Visual Services, Tulare County Schools

Luther H. Smeltzer
English, Mt. Whitney High School, Visalia

Raymond L. Smith
Director, Instructional Television Department, KQED, San Francisco

Hazel Inez Stivers
Audio-Visual Director, Madera Elementary School District

Elmer Stoll
Coordinator of Instructional Materials and Educational Television, Monterey Public Schools

J. Graham Sullivan
Chief, Division of Instruction, State Department of Education

T

Louis A. Thompson
Assistant Superintendent in Charge of Educational Services, Lynwood Unified School District

Pearl Turner
Curriculum Librarian, California State Polytechnic College, San Luis Obispo

V

Sheldon Van Duzer
Librarian, Gavilan Junior College, Hollister

Don F. Varner
Administrative Consultant, Bureau of NDEA Administration, State Department of Education

Charles J. Vento
Research Associate, Automated Cataloging, University of Southern California

Lyndon Vivrette
Coordinator, Instructional Materials, Berkeley Unified School District

W

Warren Lindle Wade
Consultant, Newer Instructional Media, Santa Clara County Schools

Mrs. Warren L. Wade

Donn B. Wallace
Director, Educational Materials, Santa Cruz County Schools

Robert A. Weisgerber
Director, Audio-Visual Center, San Francisco State College

Vernon H. Weybright
Assistant Professor of Education, Audio-Visual Instructor, LaVerne College

Don White
Executive Vice President, National Audio-Visual Association, Fairfax, Virginia

Elizabeth White
Audio-Visual Coordinator, Nevada County Schools

Eugene H. White
Supervisor in Charge, Audio-Visual Section, Los Angeles City Schools

Joseph L. White
Director of Audio-Visual Education Services, Ventura County Schools

Luella Wiens
Librarian and Director of Audio-Visual, Hartnell College, Salinas

J. Post Williams
Superintendent, Tulare County Schools

Mrs. J. Post Williams

Ken Winslow
Television Coordinator and Head, Television Office, University of California, Berkeley

Carl G. Winter
Consultant in Junior College Education, State Department of Education

Fred R. Wise
Director, Audio-Visual Education, El Dorado County Schools

Z

Mary Louise Zingheim
Supervisor of Instructional Materials, San Jose Unified School District

Sylvia Ziskind
Assistant Professor, School of Library Science, Immaculate Heart College, Los Angeles